

| | | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|------|
| ctgggtcaaaa | ggaaccaaga | tacaaagaac | tctgagctgt | catcgctccc | atctctgtga | 2760 |
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| tcattgagttg | aattctccta | ttatggatgc | tagcttctgg | ccatctctgg | ctctctctctt | 2880 |
| gacacatat | agctcttagc | ctttgcttcc | acgactttta | tcttttctcc | aacacatcgc | 2940 |
| ttaccaatcc | tctctctgct | ctgttgcttt | ggacttcccc | acaagaattt | caacgactct | 3000 |
| caaggtctttt | cttccatccc | caccactaac | ctgaatgctt | agacccttat | ttttattaat | 3060 |
| ttccaataga | tgtcgcttat | gggctatatt | gcttttagatg | aacatttagat | atttaaaagt | 3120 |
| caagagggtt | aaaatccaac | tcattatctt | ctctttcttt | cacctccctg | ctcctctccc | 3180 |
| tattattactg | attgcactga | acagcatggt | ccccaatgta | gccatgcaaa | tgagaaaccc | 3240 |
| agtggtctct | tgtgtacat | gcattgcaaga | ctgctgaagc | cagaaggatg | actgattacg | 3300 |
| ctctatgggt | ggaggggacc | actcctgggc | ctctgtgatt | gtcaggagca | agacctgaga | 3360 |
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| ctacattttga | gaattccaat | taggaactca | catgttttat | ctgcctatc | aattttttaa | 3480 |
| acttgctgaa | aattaaagttt | tttcaaaatc | tgtccttgta | aattactttt | tcttcacagt | 3540 |
| tctttggcata | ctatatcaac | tttgattctt | tgttacaact | ttcttatact | ttttatcacc | 3600 |
| aaagtggctt | ttattctctt | tattattatt | attttctttt | actactatat | tacgttgtta | 3660 |
| ttatttttgt | ctctatagta | tcaatttatt | tgatttagtt | tcaatttatt | tttattgctg | 3720 |
| acttttaaaa | taagtgtatc | gggggggtgg | agaacagggg | agggagagca | tttagcaaaa | 3780 |
| tacctaatgc | atgtgggaac | taaaacctag | atgatgggtt | gataggtgca | gcaaacacct | 3840 |
| atggcacacg | tatacctgtg | taacaaacct | acacattctg | cacatgtatc | ccagaacgta | 3900 |
| aagtaaaatt | taaaaaaagt | tga | | | | 3923 |

<210> 619

<211> 3674

<212> DNA

<213> Homo sapien

<400> 619

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| agccagttaa | acatatctct | tcttctctcc | atcaggccaa | atcacgggtg | tgaccttgcc | 180 |
| cacatcaatg | tcttagaact | tcttcacagc | ctgtttgatc | tggtgcttgt | tggtcttaac | 240 |
| atccacaagt | aacacaagtg | tgttgtgtgc | ttctatcttc | ttcgtgggtg | ctcagtggtc | 300 |
| agcggaactt | tgatgatagc | gtagtgtcca | agcttgatc | tcctgggagc | gctcttccaa | 360 |
| agatatattg | gctgcctcgg | gagttgcagc | gtcttgggcc | gcgggaaggt | gggtgacctg | 420 |
| cggaattctt | tttttttgtg | ggctgtggac | acctttcaac | actgtctctc | tgacctttaa | 480 |
| atcctctcgt | ttgtgtgtgc | ctataggagg | ggcaggagct | tcctttctca | ctttcggcgc | 540 |
| catcttctga | aaagggaagg | tttctttctt | aataccattt | tcaactctcc | cgaaatttgt | 600 |
| ggatcgtttc | ttgtgtatca | ccccagattt | caggagtgtt | ggctggatct | tagggattgt | 660 |
| gaagctctca | tttccctgtg | gtgagatctg | agccatgatt | ttaaacagtg | tgagggaagg | 720 |
| agatctccag | gcactttaat | agaatggaga | agcaggatgg | gatttgagag | gaaactctgt | 780 |
| tttgaaaaaa | ggagaacctg | agttgagttc | gtaattaaat | agcaacttaa | aggtcattca | 840 |
| gcacgcccac | ctgcacagtg | ggtgtaatca | ccctacagaa | caaaaaaaaa | aaggcaatgg | 900 |
| agaggaagct | gtaaaagcact | gtacatgttt | aactcattgt | tatgtaagct | agcogaaggc | 960 |
| ttcacagact | tgaattccat | ttccaaagtc | tcttctcgtg | ctggaacctc | tgctttaggt | 1020 |
| tgcttaaaac | ttgagaatac | gaatattgct | tcctcctcgt | gccttcttga | gtacactctg | 1080 |
| ctacacaaag | gttccacatc | ttgtttgtgt | gtgtgtgtcc | atttgctgtg | acattcttgt | 1140 |
| gaaagtcaaa | gtttccocag | tgttgacata | cacaagtttg | tttgggtgca | ctctgcagat | 1200 |
| gcacccctta | gcagggccct | ttgatactct | gggaaagaca | ttggaactac | agtcggaaag | 1260 |
| aaaagaaaga | aagtgtatgt | gtatagcgtg | cagtgagttg | gagttttacc | tgattttgtt | 1320 |
| taattttcaac | aagcctgagg | actagccaca | aatgtaccac | gtttacaagt | gaggaaacag | 1380 |
| gtgcaaaaag | gttgattacct | gtcaaaagtc | gtatgtggca | gagccaagat | ttgagccagg | 1440 |
| ttatgtctga | tgaactttag | ctatgctctt | taaacctctg | aatgctgacc | attgaggata | 1500 |
| tctaaactta | gatacaattg | attttccctc | caagactatt | tacttatcaa | tacaataata | 1560 |
| ccactctttac | caactctatg | ttttgatagc | agactcaaat | atgcgaagata | tatgtaaaag | 1620 |
| caacttcacaa | gctctctaat | catgctcacc | taaaagattc | ccgggactcta | ataggctcaa | 1680 |
| agaaactctt | cttagaataa | taaaagagaa | aattggatta | tgcaaaaatt | cattattaat | 1740 |

| | | | | | | |
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| gccttttaag | gattggggga | cagggtgaaga | acgggggtgcc | agaatgcac | ctcctactaa | 1860 |
| tgaggctcagt | acacatttgc | atttttaa | gccctgtcca | gctgggcatg | gtggatcatg | 1920 |
| cctgtaatct | caacatttga | aggccaaggc | aggaggattg | cttcagccca | gagtttcaag | 1980 |
| accagcctgg | gcaacataga | aaagccccat | ctctcaatca | atcaatcaat | gcctgtcttt | 2040 |
| tgaataaaaa | actcttttaag | aaaggtttaa | tggggcagggt | gtggtagctc | atgcctataa | 2100 |
| tacagcactt | tgggaggctg | aggcaggagg | atcactttag | cccagaagt | caagaccagc | 2160 |
| ctggggcaaca | agtgcacact | catctcaatt | ttttaataaa | atgaatacat | acataaggaa | 2220 |
| agataaaaaa | aaaagtttaa | tgaagaata | cagtataaaa | caaatctctt | ggacctaaaa | 2280 |
| gtattttttg | tcaagccaaa | tatttgtgaat | cacctctctg | tgttgaggat | agcaaatatc | 2340 |
| taagcccgag | aaactgagca | gaaagttcat | gtactaacta | atcaaccgga | gcgaaggcaa | 2400 |
| aaatgagact | aactaatcaa | tcaggagcaa | ggggcaaat | agcgggaacc | tgactctgtg | 2460 |
| ctattaagcg | acaactttcc | ctctgttgta | ttttcttttt | atcaatgta | aaaggataaa | 2520 |
| aactctctaa | aactaaaaac | aatgtttgtc | aggagtaca | aacctgacc | aactaatatt | 2580 |
| ggggaatcat | aaaatatgac | tgtatgagat | cttgatggtt | tacaaagtgt | acctactgtt | 2640 |
| aatcacttta | aacttaatag | aacttaaaaa | tgaatttacg | gaagattggaa | tggtttcttc | 2700 |
| ctgtgttatt | agttgtgtca | ggctgccata | acaaaatacc | acagactctg | aggtcttaagt | 2760 |
| aacagaiaatt | catttctcac | agttctgggg | gctggaagtc | cacgatcaag | gtgcagaaaa | 2820 |
| ggcaggcttc | attctgaggc | ccctctcttg | gctcacatgt | ggccaccctc | caactgcgtg | 2880 |
| ctcacatgac | ctcttctgtc | tcctggaaag | agggtgtggg | ggacagaggg | aaagagaagg | 2940 |
| agagggaact | ctctgtgtgc | tcgtctttca | aggaccctaa | cctggggcac | tttggccagg | 3000 |
| gcactgtggg | gtgggggggt | gtggctgctc | tgtctgtggt | ggccaagata | aagcaacaga | 3060 |
| aaaaatgtcc | aagctgtgca | gcaaaagcaa | gccaccgaac | agggatctcg | tcactcagttg | 3120 |
| gggggacctca | atgctggcca | ccctggaggc | agcccccacm | agagcccatg | aggctgtgga | 3180 |
| gcagcagaag | aagggaattg | tcctgtctct | tggcacattc | ctcacccgac | tggtgatgct | 3240 |
| ggacactgtg | atgaatggta | atgtggatga | gaatatgatg | gactccaga | aaaaggagacc | 3300 |
| cagctgtgca | ggtgctgca | aatcattaca | gccttcatcc | tggggaggaa | ctgggggcct | 3360 |
| ggtttctgggt | cagagagcag | cccagtggag | gtgagagcta | cagcctgtcc | tgcagctgtg | 3420 |
| atccccagtc | ccggtcaacc | agtaatacaag | gctgagcaga | tcaggtctcc | cggagctgtg | 3480 |
| cttgggaagg | cagccctggg | gtgagttggc | tcctgtctgtg | gtactgagac | aatattgtca | 3540 |
| taaaattcaat | gcgcccttgt | atcccctttt | cttttttatt | tgtctacatc | tataatcaat | 3600 |
| atgcatacta | gtctttgtta | gtgtttctat | tcmaactaat | agagatatgt | tataacttaa | 3660 |
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<210> 620

<211> 2051

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)... (2051)

<223> n = A,T,C or G

<400> 620

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| actttttttt | ttgaagcaag | tcctctgtct | tgttgtctct | gactagtccc | atcaggcccc | 120 |
| tgagctccaa | gactcagcat | ccaaggtccc | ctccaggaa | ctgggcagct | cagcataact | 180 |
| tatcctgttt | catctgagag | caaaaaatga | aaatttgatg | cacagaaaaa | tgactcaaa | 240 |
| gtcttaata | ctagaagaaa | tctagagaga | gcaagaagag | caggacaac | aggccaggcg | 300 |
| gtgtgcaggag | cccggtgtct | cagctggang | gaacgtcaac | cctgcagtg | gagcaggggc | 360 |
| ctcttgacaa | tctcagggtc | agatggta | gtagacacca | caggtaagct | ggccttggt | 420 |
| ctcaccccct | cccggtattca | gaaagaaacc | aaacaaggag | ctttgtgtgg | aatgaaacct | 480 |
| ctcttctctc | cagaagcact | gctgactgtt | tggtgggttc | catttgtgct | atgtgagccct | 540 |
| tggttgtttc | gaggtttggg | tggtttctcc | tccttgccct | gcctacaga | tcataaagg | 600 |
| gaacagcaag | acgtccccag | caaacatcca | cagatggcct | tggaaataag | tcacctctct | 660 |
| cacctgcag | gaatgccagt | gaacatattg | ctgacctctt | ggagctcagt | acctcatagt | 720 |
| gtaacggcgt | cagtagatct | gcctgtgctg | ggacttctct | tactaccat | tcctgagggg | 780 |

| | | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|------|
| cgatgcttct | gcagggctgc | tgacttggtg | cacaacttca | gacaccatca | tcttgacgca | 840 |
| gcaccgcacc | ctcactagcc | aggggtgtga | tgacttctcc | aaggccaagg | ccacatttcaa | 900 |
| ggcttcggag | ttcatttgat | cgcttggtgc | gagcaagggtg | gcttctccgg | gatcttaatt | 960 |
| caggaggtag | aatggagctt | gagatcaagt | gtctgatcaa | gcctcagtg | atggggcgctg | 1020 |
| ttcatctctc | gggtgctgaag | cagccaaggag | accaagctct | gcctggctgc | ctcttaggat | 1080 |
| atgcacagca | agccactggc | ctctactaga | tccgtatcaa | ccctcacaaa | caccagaca | 1140 |
| tcgggagtg | tgccagctgc | tgatgcaaga | gtcctaacc | tgaagacatt | gaatgacctg | 1200 |
| tcgtttgtgc | gtttttacca | aaaaggatca | tgaggatcag | agaggaaaag | tcacttgcgc | 1260 |
| aaagtccac | agctgaacag | tggtggagtt | caactttgac | cggtgggtgt | ctggccccc | 1320 |
| aggtgtatgc | ttgcttctct | cccaagagac | tcctttctta | tcaggctcaa | atgaatgaaa | 1380 |
| ggaggtatgt | taagacaacg | ccattattga | cgagatcact | cccaagcgga | ttggagattg | 1440 |
| tcaccaatatt | agagctggtc | gcaaggcctt | gggagaaatg | gtggtgcagc | agggagagca | 1500 |
| gaacctaac | attgccatcc | taaggccctc | cattgtgtgt | agcaacgtgg | caccagcttt | 1560 |
| tcctgggtg | ggttgataat | ctaaatggat | gtagccgact | cattatttgcg | gtatgtatag | 1620 |
| ggatgaagaa | gtaactgttaa | tgtagtggag | gaatagtaag | aaaattctta | gtgctggctt | 1680 |
| agcttaattg | atccaaaac | ataaatgcta | ctttactatc | aattgaagca | tattattttc | 1740 |
| attattctgg | ttataatagt | gaggcaggat | gaaattgttt | ttattctttt | agaatttttt | 1800 |
| tttatcagga | aaacagaggt | aaagtgtcat | caattactat | ttaagagttc | tattttgaaa | 1860 |
| agtgagaaat | aaaggtattt | cttttcttt | taaaaaaaac | ttttttaaaa | atataaaaaa | 1920 |
| aaagaagcaa | aaagtcttag | aaaatgaagc | aaagtaccc | gccactctat | gtacagtaat | 1980 |
| aacataatct | gtccagtgta | ttatgtacaa | tattataaaa | aatgtcgcag | acagtaaaaa | 2040 |
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<210> 621

<211> 2841

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(2841)

<223> n = A,T,C or G

<400> 621

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| ctgatccctg | tcacactcac | tggaaggagc | ctcccaactg | gggctccag | ctaccccac | 120 |
| cagcatccct | tgccaatgtg | aaatttgaaa | tgttccctgg | acagagctcc | tggaagagg | 180 |
| ggcaggccac | accctttgct | gtttgggtga | ctagccgttc | tggtcctgag | ctcttggaga | 240 |
| gcccaagctg | acaaggggta | gaagaggtgc | ctcagcacag | cacagccaag | ctacgaaaa | 300 |
| atggccagac | tcttgtttaa | gtcagtcacc | gaacacatt | ctagtcagt | gggtgaagct | 360 |
| ttcaaccagg | gtctctgggt | accttgactg | ctgttctctg | gcgcacagag | gtctcaggcc | 420 |
| tcctctgagtc | agagctcccg | ggggaggagc | cagattgtca | tcttctgctg | ttgggtgacc | 480 |
| cagccatttc | agccttaggg | cttcagagtg | tctgaggtag | ccaggggctg | aagtgaaccc | 540 |
| ccagcacagc | acagctgctg | tataaaaacg | tgccagactt | tttcttttaa | gcaagtcctc | 600 |
| gttcttattc | ctcctgacta | ggttaagactt | ctcaacttgc | ctccagccac | atcttatttg | 660 |
| tggtgtcaga | ttggcaacag | gtttgtacct | cagtggtaca | gagctcccag | aggaaggggg | 720 |
| aggctatcat | cttccttgga | aaatacagat | caattaggga | cttgagggga | ccccagcat | 780 |
| tcacacagag | cccttcagaa | aagtggccag | actctgtact | tgatgggacg | atcctctctg | 840 |
| ctctgtcttc | tgaccagccc | accactggag | ctatcacagc | agtagcaact | cagtgacttc | 900 |
| ttggacagag | cttccagggg | caaatagaat | ctcttctgcc | actgcctttg | cagtgaaactg | 960 |
| ccctgtctat | ctcagaga | tatatccagg | gagcaaaagc | ctaagtgtcc | atatcaaac | 1020 |
| ctccaataag | ctgcagttga | cccaagaac | aagccaatcc | atctcccaca | gggtccacac | 1080 |
| acactccact | actcatcacc | agacagggaa | ccctggcttg | ggccccacag | acagaccctc | 1140 |
| catcctgggc | cgattacatc | gagtgattgc | taactcacat | gtctctggga | tgagcacacc | 1200 |
| aggagacaag | caaaagtgtg | gagcagcaag | tcaggtgatg | tgagagccag | agggcaggga | 1260 |
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| ctgcttgctc | ctccaggggc | ccagcctgtg | ccacacctgc | ttacagggga | ctctcagatg | 1380 |
| cccatccat | agtttctgtg | ctagtggacc | gtaccatatc | agtggagagc | tgacgaagg | 1440 |

| | | | | | | |
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| tggcccntac | ggccacgcac | cagcctgcac | attacctctc | catactgcag | coctttatat | 1500 |
| ggaaacttcc | tacatcactt | tgctgtgtgt | gtttacacag | gtggattttg | ctttacttgc | 1560 |
| actgacagca | cacagggagg | cagcacacac | cccaaccac | atcaactgcc | attaaagaaa | 1620 |
| agaaatttca | ggccataatt | tcctgtccag | caaaattagg | catcataagt | gaaggagaaa | 1680 |
| taagatccct | ttcagacaag | caaagtctga | gggaattcaa | tatcaccaga | tctaccttac | 1740 |
| aagagctcct | gaaggaaagca | ctaaatatgg | aaagaaaaaa | ccatcaccag | ccactacaaa | 1800 |
| aatgcagtga | agaacgcagt | gaattacgca | gtccagtgat | gctaaaaaac | aaccacatcc | 1860 |
| ttctcaattg | caaaataaac | agctgcacgc | atgacgcagc | gataaaatcca | catataccat | 1920 |
| tactaacctt | aaatgaaaaa | gggctaattg | ctcccattga | aagacatggg | gcaagctgga | 1980 |
| taaaagaacca | agaccctcgt | gagtatgctg | tcttcaagaa | accocatcca | ctcgcggtgg | 2040 |
| catacatagg | ctcaaaataa | aggaatggag | aaaaatattt | caagcaaatg | gaaaacagaa | 2100 |
| aaaagcagyt | gttgactctc | tactttctga | caaaacagac | tatgccaata | aagataaaaa | 2160 |
| agagaaggac | attacaaaag | tggtcctgac | ctttgtatata | tctcattgct | tgtataccaac | 2220 |
| ctgggctggt | ttaatttgccc | aaanccaata | ggataatttg | ctgaggttgt | ggagcttctc | 2280 |
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| caactcctt | ttctgaagtt | ttactcattt | ccaaaaagga | aggcaagttt | tctgctctcc | 2400 |
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| tgagtgttaag | ttttttccag | cttctaagat | ggcagagaac | gatcaccagc | ctgagcctta | 2520 |
| tttccagttga | agtactgtgaa | ttagagtttt | gtcttaaaat | ttttccttaa | tgattaaaaa | 2580 |
| gtaagattac | ccaccagctg | cttttaattt | ctcccttagc | attagaacac | tcagtaataca | 2640 |
| tactgaattgt | gcaattgttt | gttttgctta | actctttctg | ttttggggtt | tttgggggtt | 2700 |
| tattgtgtgt | gtttcaacttt | tctccatctt | cttctgact | tggtcaaatc | caaaggaagt | 2760 |
| ttcgaaattg | tggggagcaa | ggcatctgaa | atggctaaaa | ctcctgtggc | tgcaaaaaat | 2820 |
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<210> 622

<211> 3228

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)... (3228)

<223> n = A,T,C or G

<400> 622

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| ctctcnggt | aactagagaa | cccactgctt | actggcttat | cgaataattat | acgactcaat | 120 |
| ataggagagac | ccaagctgtt | tagcgcttaa | acttaagctt | ggtaaccgagc | tggatccac | 180 |
| tagtccagtg | tggtggaatt | ccattgtgtt | gggcaggaaa | caagcaaatg | ggtagagacg | 240 |
| caagtcagggt | gatgtgagtc | ccagaggtca | gggatggctg | tctctctagg | gtccacttgc | 300 |
| ccttgtgaga | cactttatcc | cagcacttta | ggaatactga | ggatcatacca | gccacatctt | 360 |
| atatgcaaga | ttggccagca | gagatcaggt | cogagagttc | cccttttaaa | aaaaggagac | 420 |
| ttgtttaata | aaagaagtct | agccacgctt | gtgtagagcg | gctgtgctgt | gctgggggtt | 480 |
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| gagatggggc | tggtctgctc | tcagcactcc | ttagtctgct | cgctctctcc | atggcccccag | 600 |
| cctggccaca | cctgcttaag | gggcactctt | agatgccaac | accataactt | ccatgctagt | 660 |
| ggactctgacc | atatcagtggt | agagctgcag | caaggtggcc | ccatagacca | cgcaaccagcc | 720 |
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<400> 625

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| aacctgtctc | tcaggcctga | actcaccata | gagaccatct | tcagcaaaag | gtgaccacga | 2760 |
| aatctctctc | ctctattctc | aagctgcccc | ttgggagact | ccaggagaaa | ggcattgtct | 2820 |
| cctccctggt | gtgaactctt | tcttttgat | tcacatccat | atctctggcaa | ctcaaggctg | 2880 |
| cttctgttaa | ctgaagcctg | ctcctctctg | ttctgccttc | cagagatttg | ctcaaatgat | 2940 |
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<210> 631

<211> 3064

<212> DNA

<213> Homo sapiens

<400> 631

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| acattgactt | cttgacatcag | gacaacgcgc | tttctcacca | cacatgggag | ttccaaacga | 240 |
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| tacaatccta | ccaccaactg | aaactggaat | tcagcacagg | gccgaatcct | agcatgcgca | 360 |
| aaacacacct | ggtggtgtct | gacctgagga | cgccctcaga | ccactacaac | tggcaggcaa | 420 |
| cctcttcaaaa | tgactctggc | aaagaggtca | cagtggtcgt | caccagttcc | ccaatggcca | 480 |
| tcctgtgcgaa | tcgccaacta | aacgtgaaaa | ctggaacca | catccttaag | tcgtaagaaa | 540 |
| acatcctata | ccttctcttc | aacctatggt | gtaaaagagg | catggttttc | atgctgatg | 600 |
| aggcagagcg | caaaagatgc | atcctcaatg | acacgggctg | ccattacgtg | ggggctgcga | 660 |
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| tgtgcagggc | catgtgtgct | atgatgagct | ttgagaaagg | ccagggcgtg | ctcatggga | 840 |
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| ctgggatcct | gactacagtg | ctgagagcgt | tgggcatccc | agcacgcagt | gtgacaggct | 1020 |
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| cagaagtgc | ttcgaccttg | gactccaaga | cctacatcaa | cagcctggct | atatatagat | 1800 |
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| cctctgaagt | attcaagtc | aaccagtacc | ctgagttctc | tatagagtgt | cctaacaacg | 1920 |
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| tgactcagct | caagttctct | ttggaaagcc | tgggcatctc | ctcactacag | acctctgacc | 2040 |
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| ctggaccocaa | gaaatttatc | gtcaagttaa | gttccaaaca | agtgaagag | attaatgctc | 2160 |
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| ttgtctcaat | agatttccaa | agatttccaa | gccacagagc | ttctccctg | agcagcagca | 2520 |
| tatgggcagc | ccagtgctgc | cacctgtcta | cgacctgtga | gaagctgcga | tatcttcagg | 2580 |
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<210> 632

<211> 684

<212> PRT

<213> Homo sapiens

<400> 632

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Met Met Asp Ala Ser Lys Glu Leu Gln Val Leu His Ile Asp Phe Leu
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Asn Gln Asp Asn Ala Val Ser His His Thr Trp Glu Phe Gln Thr Ser
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```

```

Ser Pro Val Phe Arg Arg Gly Gln Val Phe His Leu Arg Leu Val Leu
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```

```

Asn Gln Pro Leu Gln Ser Tyr His Gln Leu Lys Leu Glu Phe Ser Thr
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```

```

Gly Pro Asn Pro Ser Ile Ala Lys His Thr Leu Val Val Leu Asp Pro
      65                                70                                75                                80

```

```

Arg Thr Pro Ser Asp His Tyr Asn Trp Gln Ala Thr Leu Gln Asn Glu
      85                                90                                95

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```

Ser Gly Lys Glu Val Thr Val Ala Val Thr Ser Ser Pro Asn Ala Ile
      100                                105                                110

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```

Leu Gly Lys Tyr Gln Leu Asn Val Lys Thr Gly Asn His Ile Leu Lys
      115                                120                                125

```

```

Ser Glu Glu Asn Ile Leu Tyr Leu Leu Phe Asn Pro Trp Cys Lys Glu
      130                                135                                140

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```

Asp Met Val Phe Met Pro Asp Glu Asp Glu Arg Lys Glu Tyr Ile Leu
      145                                150                                155                                160

```

```

Asn Asp Thr Gly Cys His Tyr Val Gly Ala Ala Arg Ser Ile Lys Cys
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```

```

Lys Pro Trp Asn Phe Gly Gln Phe Glu Lys Asn Val Leu Asp Cys Cys
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Ile Ser Leu Leu Thr Glu Ser Ser Leu Lys Pro Thr Asp Arg Arg Asp
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```

Pro Val Leu Val Cys Arg Ala Met Cys Ala Met Ser Phe Glu Lys
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```

```

Gly Gln Gly Val Leu Ile Gly Asn Trp Thr Gly Asp Tyr Glu Gly Gly

```


| | | | |
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| 225 | 230 | 235 | 240 |
| Thr Ala Pro Tyr Lys Trp Thr Gly Ser Ala Pro Ile Leu Gln Gln Tyr | 245 | 250 | 255 |
| Tyr Asn Thr Lys Gln Ala Val Cys Phe Gly Gln Cys Trp Val Phe Ala | 260 | 265 | 270 |
| Gly Ile Leu Thr Thr Val Leu Arg Ala Leu Gly Ile Pro Ala Arg Ser | 275 | 280 | 285 |
| Val Thr Gly Phe Asp Ser Ala His Asp Thr Glu Arg Asn Leu Thr Val | 290 | 295 | 300 |
| Asp Thr Tyr Val Asn Glu Asn Gly Lys Lys Ile Thr Ser Met Thr His | 305 | 310 | 315 |
| Asp Ser Val Trp Asn Phe His Val Trp Thr Asp Ala Trp Met Lys Arg | 325 | 330 | 335 |
| Pro Asp Leu Pro Lys Gly Tyr Asp Gly Trp Gln Ala Val Asp Ala Thr | 340 | 345 | 350 |
| Pro Gln Glu Arg Ser Gln Gly Val Phe Cys Cys Gly Pro Ser Pro Leu | 355 | 360 | 365 |
| Thr Ala Ile Arg Lys Gly Asp Ile Phe Ile Val Tyr Asp Thr Arg Phe | 370 | 375 | 380 |
| Val Phe Ser Glu Val Asn Gly Asp Arg Leu Ile Trp Leu Val Lys Met | 385 | 390 | 395 |
| Val Asn Gly Gln Glu Glu Leu His Val Ile Ser Met Glu Thr Thr Ser | 405 | 410 | 415 |
| Ile Gly Lys Asn Ile Ser Thr Lys Ala Val Gly Gln Asp Arg Arg Arg | 420 | 425 | 430 |
| Asp Ile Thr Tyr Glu Tyr Lys Tyr Pro Glu Gly Ser Ser Glu Glu Arg | 435 | 440 | 445 |
| Gln Val Met Asp His Ala Phe Leu Leu Leu Ser Ser Glu Arg Glu His | 450 | 455 | 460 |
| Arg Arg Pro Val Lys Glu Asn Phe Leu His Met Ser Val Gln Ser Asp | 465 | 470 | 475 |
| Asp Val Leu Leu Gly Asn Ser Val Asn Phe Thr Val Ile Leu Lys Arg | 485 | 490 | 495 |
| Lys Thr Ala Ala Leu Gln Asn Val Asn Ile Leu Gly Ser Phe Glu Leu | 500 | 505 | 510 |
| Gln Leu Tyr Thr Gly Lys Lys Met Ala Lys Leu Cys Asp Leu Asn Lys | 515 | 520 | 525 |
| Thr Ser Gln Ile Gln Gly Gln Val Ser Glu Val Thr Leu Thr Leu Asp | 530 | 535 | 540 |

Ser Lys Thr Tyr Ile Asn Ser Leu Ala Ile Leu Asp Asp Glu Pro Val
 545 550 555 560
 Ile Arg Gly Phe Ile Ile Ala Glu Ile Val Glu Ser Lys Glu Ile Met
 565 570 575

Ala Ser Glu Val Phe Thr Ser Phe Gln Tyr Pro Glu Phe Ser Ile Glu
 580 585 590

Leu Pro Asn Thr Gly Arg Ile Gly Gln Leu Leu Val Cys Asn Cys Ile
 595 600 605

Phe Lys Asn Thr Leu Ala Ile Pro Leu Thr Asp Val Lys Phe Ser Leu
 610 615 620

Glu Ser Leu Gly Ile Ser Ser Leu Gln Thr Ser Asp His Gly Thr Val
 625 630 635 640

Gln Pro Gly Glu Thr Ile Gln Ser Gln Ile Lys Cys Thr Pro Ile Lys
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Thr Gly Pro Lys Lys Phe Ile Val Lys Leu Ser Ser Lys Gln Val Lys
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Glu Ile Asn Ala Gln Lys Ile Val Leu Ile Thr Lys
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<210> 633

<211> 679

<212> PRT

<213> Homo sapiens

<400> 633

Met Met Asp Ala Ser Lys Glu Leu Gln Val Leu His Ile Asp Phe Leu
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Asn Gln Asp Asn Ala Val Ser His His Thr Trp Glu Phe Gln Thr Ser
 20 25 30

Ser Pro Val Phe Arg Arg Gly Gln Val Phe His Leu Arg Leu Val Leu
 35 40 45

Asn Gln Pro Leu Gln Ser Tyr His Gln Leu Lys Leu Glu Phe Ser Thr
 50 55 60

Gly Pro Asn Pro Ser Ile Ala Lys His Thr Leu Val Val Leu Asp Pro
 65 70 75 80

Arg Thr Pro Ser Asp His Tyr Asn Trp Gln Ala Thr Leu Gln Asn Glu
 85 90 95

Ser Gly Lys Glu Val Thr Val Ala Val Thr Ser Ser Pro Asn Ala Ile
 100 105 110

Leu Gly Lys Tyr Gln Leu Asn Val Lys Thr Gly Asn His Ile Leu Lys
 115 120 125

Ser Glu Glu Asn Ile Leu Tyr Leu Leu Phe Asn Pro Trp Cys Lys Glu
 130 135 140
 Asp Met Val Phe Met Pro Asp Glu Asp Glu Arg Lys Glu Tyr Ile Leu
 145 150 155 160
 Asn Asp Thr Gly Cys His Tyr Val Gly Ala Ala Arg Ser Ile Lys Cys
 165 170 175
 Lys Pro Trp Asn Phe Gly Gln Phe Glu Lys Asn Val Leu Asp Cys Cys
 180 185 190
 Ile Ser Leu Leu Thr Glu Ser Ser Leu Lys Pro Thr Asp Arg Arg Asp
 195 200 205
 Pro Val Leu Val Cys Arg Ala Met Cys Ala Met Met Ser Phe Glu Lys
 210 215 220
 Gly Gln Gly Val Leu Ile Gly Asn Trp Thr Gly Asp Tyr Glu Gly Gly
 225 230 235 240
 Thr Ala Pro Tyr Lys Trp Thr Gly Ser Ala Pro Ile Leu Gln Gln Tyr
 245 250 255
 Tyr Asn Thr Lys Gln Ala Val Cys Phe Gly Gln Cys Trp Val Phe Ala
 260 265 270
 Gly Ile Leu Thr Thr Val Leu Arg Ala Leu Gly Ile Pro Ala Arg Ser
 275 280 285
 Val Thr Gly Phe Asp Ser Ala His Asp Thr Glu Arg Asn Leu Thr Val
 290 295 300
 Asp Thr Tyr Val Asn Glu Asn Gly Glu Lys Ile Thr Ser Met Thr His
 305 310 315 320
 Asp Ser Val Trp Asn Phe His Val Trp Thr Asp Ala Trp Met Lys Arg
 325 330 335
 Pro Tyr Asp Gly Trp Gln Ala Val Asp Ala Thr Pro Gln Glu Arg Ser
 340 345 350
 Gln Gly Val Phe Cys Cys Gly Pro Ser Pro Leu Thr Ala Ile Arg Lys
 355 360 365
 Gly Asp Ile Phe Ile Val Tyr Asp Thr Arg Phe Val Phe Ser Glu Val
 370 375 380
 Asn Gly Asp Arg Leu Ile Trp Leu Val Lys Met Val Asn Gly Gln Glu
 385 390 395 400
 Glu Leu His Val Ile Ser Met Glu Thr Thr Ser Ile Gly Lys Asn Ile
 405 410 415
 Ser Thr Lys Ala Val Gly Gln Asp Arg Arg Asp Ile Thr Tyr Glu
 420 425 430
 Tyr Lys Tyr Pro Glu Gly Ser Ser Glu Glu Arg Gln Val Met Asp His

| | | | | |
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| 435 | | 440 | | 445 |
| Ala Phe Leu Leu Leu Ser Ser Glu Arg Glu His Arg Gln Pro Val Lys | | | | |
| 450 | | 455 | | 460 |
| Glu Asn Phe Leu His Met Ser Val Gln Ser Asp Asp Val Leu Leu Gly | | | | |
| 465 | | 470 | | 475 |
| Asn Ser Val Asn Phe Thr Val Ile Leu Lys Arg Lys Thr Ala Ala Leu | | | | |
| | 485 | | 490 | 495 |
| Gln Asn Val Asn Ile Leu Gly Ser Phe Glu Leu Gln Leu Tyr Thr Gly | | | | |
| | 500 | | 505 | 510 |
| Lys Lys Met Ala Lys Leu Cys Asp Leu Asn Lys Thr Ser Gln Ile Gln | | | | |
| | 515 | | 520 | 525 |
| Gly Gln Val Ser Glu Val Thr Leu Thr Leu Asp Ser Lys Thr Tyr Ile | | | | |
| | 530 | | 535 | 540 |
| Asn Ser Leu Ala Ile Leu Asp Asp Glu Pro Val Ile Arg Gly Phe Ile | | | | |
| 545 | | 550 | | 555 |
| Ile Ala Glu Ile Val Glu Ser Lys Glu Ile Met Ala Ser Glu Val Phe | | | | |
| | 565 | | 570 | 575 |
| Thr Ser Asn Gln Tyr Pro Glu Phe Ser Ile Glu Leu Pro Asn Thr Gly | | | | |
| | 580 | | 585 | 590 |
| Arg Ile Gly Gln Leu Leu Val Cys Asn Cys Ile Phe Lys Asn Thr Leu | | | | |
| | 595 | | 600 | 605 |
| Ala Ile Pro Leu Thr Asp Val Lys Phe Ser Leu Glu Ser Leu Gly Ile | | | | |
| | 610 | | 615 | 620 |
| Ser Ser Leu Gln Thr Ser Asp His Gly Thr Val Gln Pro Gly Glu Thr | | | | |
| 625 | | 630 | | 635 |
| Ile Gln Ser Gln Ile Lys Cys Thr Pro Ile Lys Thr Gly Pro Lys Lys | | | | |
| | 645 | | 650 | 655 |
| Phe Ile Val Lys Leu Ser Ser Lys Gln Val Lys Glu Ile Asn Ala Gln | | | | |
| | 660 | | 665 | 670 |
| Lys Ile Val Leu Ile Thr Lys | | | | |
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<210> 634

<211> 5668

<212> DNA

<213> Homo sapiens

<400> 634

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| | | | | | | |
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| cagcacatgg | aaggcaccca | gatcaaccaa | agtgagaagt | ggaaactcaa | gaaacacacc | 300 |
| aaggaatttc | ctaccgcgcg | ctttggggat | attcagtttg | agacactggg | gaagaaaggg | 360 |
| aagtataatac | gtctgtccgt | cgacacggac | gcggaaatcc | tttacgagct | gctgaccocag | 420 |
| caactggcacc | tgaanaaccc | caacctgttc | atttctgtga | ccgggggcgc | caagaacttc | 480 |
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<211> 1095

<212> PRT

<213> Homo sapiens

<400> 635

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Val Asn Phe Ile Gln Ala Asn Phe Lys Lys Arg Glu Cys Val Phe Phe
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Thr Lys Asp Ser Lys Ala Thr Glu Asn Val Cys Lys Cys Gly Tyr Ala
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Gln Ser Gln His Met Glu Gly Thr Gln Ile Asn Gln Ser Glu Lys Trp
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Asn Tyr Lys Lys His Thr Lys Glu Phe Pro Thr Asp Ala Phe Gly Asp
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 130 135 140
 Asn Phe Ala Leu Lys Pro Arg Met Arg Lys Ile Phe Ser Arg Leu Ile
 145 150 155 160
 Tyr Ile Ala Gln Ser Lys Gly Ala Trp Ile Leu Thr Gly Gly Thr His
 165 170 175
 Tyr Gly Leu Thr Lys Tyr Ile Gly Glu Val Val Arg Asp Asn Thr Ile
 180 185 190
 Ser Arg Ser Ser Glu Glu Asn Ile Val Ala Ile Gly Ile Ala Ala Trp
 195 200 205
 Gly Met Val Ser Asn Arg Asp Thr Leu Ile Arg Asn Cys Asp Ala Glu
 210 215 220
 Gly Tyr Phe Leu Ala Gln Tyr Leu Met Asp Asp Phe Thr Arg Asp Pro
 225 230 235 240
 Leu Tyr Ile Leu Asp Asn Asn His Thr His Leu Leu Leu Val Asp Asn
 245 250 255
 Gly Cys His Gly His Pro Thr Val Glu Ala Lys Leu Arg Asn Gln Leu
 260 265 270
 Glu Lys His Ile Ser Glu Arg Thr Ile Gln Asp Ser Asn Tyr Gly Gly
 275 280 285
 Lys Ile Pro Ile Val Cys Phe Ala Gln Gly Gly Gly Lys Glu Thr Leu
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 Lys Ala Ile Asn Thr Ser Ile Lys Asn Lys Ile Pro Cys Val Val Val
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 Glu Gly Ser Gly Arg Ile Ala Asp Val Ile Ala Ser Leu Val Glu Val
 325 330 335
 Glu Asp Ala Pro Thr Ser Ser Ala Val Lys Glu Lys Leu Val Arg Phe
 340 345 350
 Leu Pro Arg Thr Val Ser Arg Leu Ser Glu Glu Glu Thr Glu Ser Trp
 355 360 365
 Ile Lys Trp Leu Lys Glu Ile Leu Glu Cys Ser His Leu Leu Thr Val
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 Ile Lys Met Glu Glu Ala Gly Asp Glu Ile Val Ser Asn Ala Ile Ser
 385 390 395 400

Tyr Ala Leu Tyr Lys Ala Phe Ser Thr Ser Glu Gln Asp Lys Asp Asn
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 Trp Asn Gly Gln Leu Lys Leu Leu Leu Glu Trp Asn Gln Leu Asp Leu
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 Ala Asn Asp Glu Ile Phe Thr Asn Asp Arg Arg Trp Glu Ser Ala Asp
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 His Asp Val Leu Thr Glu Leu Phe Ser Asn His Phe Ser Thr Leu Val
 485 490 495
 Tyr Arg Asn Leu Gln Ile Ala Lys Asn Ser Tyr Asn Asp Ala Leu Leu
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 Glu Asp Arg Asn Gly Arg Asp Glu Met Asp Ile Glu Leu His Asp Val
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 Ser Pro Ile Thr Arg His Pro Leu Gln Ala Leu Phe Ile Trp Ala Ile
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 Leu Gln Asn Lys Lys Glu Leu Ser Lys Val Ile Trp Glu Gln Thr Arg
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 Gly Cys Thr Leu Ala Ala Leu Gly Ala Ser Lys Leu Leu Lys Thr Leu
 580 585 590
 Ala Lys Val Lys Asn Asp Ile Asn Ala Ala Gly Glu Ser Glu Glu Leu
 595 600 605
 Ala Asn Glu Tyr Glu Thr Arg Ala Val Glu Leu Phe Thr Glu Cys Tyr
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 Ser Ser Asp Glu Asp Leu Ala Glu Gln Leu Leu Val Tyr Ser Cys Glu
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 Trp Tyr Gly Glu Ile Ser Arg Asp Thr Lys Asn Trp Lys Ile Ile Leu
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 Lys Lys Pro Val Asp Lys His Lys Lys Leu Leu Trp Tyr Tyr Val Ala

| | | | | | | |
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| Ile Ala Phe Leu Leu Leu Phe Ala Tyr Val Leu Leu Met Asp Phe His | | | | | | |
| | | 740 | | 745 | | 750 |
| Ser Val Pro His Pro Pro Glu Leu Val Leu Tyr Ser Leu Val Phe Val | | | | | | |
| | | 755 | | 760 | | 765 |
| Leu Phe Cys Asp Glu Val Arg Gln Trp Tyr Val Asn Gly Val Asn Tyr | | | | | | |
| | | 770 | | 775 | | 780 |
| Phe Thr Asp Leu Trp Asn Val Met Asp Thr Leu Gly Leu Phe Tyr Phe | | | | | | |
| | | 785 | | 790 | | 795 |
| Ile Ala Gly Ile Val Phe Arg Leu His Ser Ser Asn Lys Ser Ser Leu | | | | | | |
| | | 805 | | 810 | | 815 |
| Tyr Ser Gly Arg Val Ile Phe Cys Leu Asp Tyr Ile Ile Phe Thr Leu | | | | | | |
| | | 820 | | 825 | | 830 |
| Arg Leu Ile His Ile Phe Thr Val Ser Arg Asn Leu Gly Pro Lys Ile | | | | | | |
| | | 835 | | 840 | | 845 |
| Ile Met Leu Gln Arg Met Leu Ile Asp Val Phe Phe Phe Leu Phe Leu | | | | | | |
| | | 850 | | 855 | | 860 |
| Phe Ala Val Trp Met Val Ala Phe Gly Val Ala Arg Gln Gly Ile Leu | | | | | | |
| | | 865 | | 870 | | 875 |
| Arg Gln Asn Glu Gln Arg Trp Arg Trp Ile Phe Arg Ser Val Ile Tyr | | | | | | |
| | | 885 | | 890 | | 895 |
| Glu Pro Tyr Leu Ala Met Phe Gly Gln Val Pro Ser Asp Val Asp Gly | | | | | | |
| | | 900 | | 905 | | 910 |
| Thr Thr Tyr Asp Phe Ala His Cys Thr Phe Thr Gly Asn Glu Ser Lys | | | | | | |
| | | 915 | | 920 | | 925 |
| Pro Leu Cys Val Glu Leu Asp Glu His Asn Leu Pro Arg Phe Pro Glu | | | | | | |
| | | 930 | | 935 | | 940 |
| Trp Ile Thr Ile Pro Leu Val Cys Ile Tyr Met Leu Ser Thr Asn Ile | | | | | | |
| | | 945 | | 950 | | 955 |
| Leu Leu Val Asn Leu Leu Val Ala Met Phe Gly Tyr Thr Val Gly Thr | | | | | | |
| | | 965 | | 970 | | 975 |
| Val Gln Glu Asn Asn Asp Gln Val Trp Lys Phe Gln Arg Tyr Phe Leu | | | | | | |
| | | 980 | | 985 | | 990 |
| Val Gln Glu Tyr Cys Ser Arg Leu Asn Ile Pro Phe Pro Phe Ile Val | | | | | | |
| | | 995 | | 1000 | | 1005 |
| Phe Ala Tyr Phe Tyr Met Val Val Lys Lys Cys Phe Lys Cys Cys Cys | | | | | | |
| | | 1010 | | 1015 | | 1020 |

Lys Glu Lys Asn Met Glu Ser Ser Val Cys Cys Phe Lys Asn Glu Asp
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 Asn Glu Thr Leu Ala Trp Glu Gly Val Met Lys Glu Asn Tyr Leu Val
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 Lys Ile Asn Thr Lys Ala Asn Asp Thr Ser Glu Glu Met Arg His Arg
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<210> 637

<211> 1095

<212> FRT

<213> Homo sapiens

<220>

<221> VARIANT

<222> (1) ... (1095)

<223> Xaa = Any Amino Acid

<400> 637

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Ser Ser Ala Ser Arg Ser Thr Asp Leu Ser Tyr Ser Glu Ser Asp Leu
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Val Asn Phe Ile Gln Ala Asn Phe Lys Lys Arg Glu Cys Val Phe Phe
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Thr Lys Asp Ser Lys Ala Thr Glu Asn Val Cys Lys Cys Gly Tyr Ala
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Gln Ser Gln His Met Glu Gly Thr Gln Ile Asn Gln Ser Glu Lys Trp
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Asn Tyr Lys Lys His Thr Lys Glu Phe Pro Thr Asp Ala Phe Gly Asp
          85                      90                      95

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Ile Gln Phe Glu Thr Leu Gly Lys Lys Gly Lys Tyr Ile Arg Leu Ser

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| His Leu Lys Thr Pro Asn Leu Val Ile Ser Val Thr Gly Gly Ala Lys 130 135 140 | | |
| Asn Phe Ala Leu Lys Pro Arg Met Arg Lys Ile Phe Ser Arg Leu Ile 145 150 155 160 | | |
| Tyr Ile Ala Gln Ser Lys Gly Ala Trp Ile Leu Thr Gly Gly Thr His 165 170 175 | | |
| Tyr Gly Leu Met Lys Tyr Ile Gly Glu Val Val Arg Asp Asn Thr Ile 180 185 190 | | |
| Ser Arg Ser Ser Glu Glu Asn Ile Val Ala Ile Gly Ile Ala Ala Trp 195 200 205 | | |
| Gly Met Val Ser Asn Arg Asp Thr Leu Ile Arg Asn Cys Asp Ala Glu 210 215 220 | | |
| Gly Tyr Phe Leu Ala Gln Tyr Leu Met Asp Asp Phe Thr Arg Asp Pro 225 230 235 240 | | |
| Leu Tyr Ile Leu Asp Asn Asn His Thr His Leu Leu Leu Val Asp Asn 245 250 255 | | |
| Gly Cys His Gly His Pro Thr Val Glu Ala Lys Leu Arg Asn Gln Leu 260 265 270 | | |
| Glu Lys Tyr Ile Ser Glu Arg Thr Ile Gln Asp Ser Asn Tyr Gly Gly 275 280 285 | | |
| Lys Ile Pro Ile Val Cys Phe Ala Gln Gly Gly Gly Lys Glu Thr Leu 290 295 300 | | |
| Lys Ala Ile Asn Thr Ser Ile Lys Asn Lys Ile Pro Cys Val Val Val 305 310 315 320 | | |
| Glu Gly Ser Gly Gln Ile Ala Asp Val Ile Ala Ser Leu Val Glu Val 325 330 335 | | |
| Glu Asp Ala Leu Thr Ser Ser Ala Val Lys Glu Lys Leu Val Arg Phe 340 345 350 | | |
| Leu Pro Arg Thr Val Ser Arg Leu Pro Glu Glu Glu Thr Glu Ser Trp 355 360 365 | | |
| Ile Lys Trp Leu Lys Glu Ile Leu Glu Cys Ser His Leu Leu Thr Val 370 375 380 | | |
| Ile Lys Met Glu Glu Ala Gly Asp Glu Ile Val Ser Asn Ala Ile Ser 385 390 395 400 | | |
| Tyr Ala Leu Tyr Lys Ala Phe Ser Thr Ser Glu Gln Asp Lys Asp Asn 405 410 415 | | |

Trp Asn Gly Gln Leu Lys Leu Leu Leu Glu Trp Asn Gln Leu Asp Leu
 420 425 430
 Ala Asn Asp Glu Ile Phe Thr Asn Asp Arg Arg Trp Glu Ser Ala Asp
 435 440 445
 Leu Gln Glu Val Met Phe Thr Ala Leu Ile Lys Asp Arg Pro Lys Phe
 450 455 460
 Val Arg Leu Phe Leu Glu Asn Gly Leu Asn Leu Arg Lys Phe Leu Thr
 465 470 475 480
 His Asp Val Leu Thr Glu Leu Phe Ser Asn His Phe Ser Thr Leu Val
 485 490 495
 Tyr Arg Asn Leu Gln Ile Ala Lys Asn Ser Tyr Asn Asp Ala Leu Leu
 500 505 510
 Thr Phe Val Trp Lys Leu Val Ala Asn Phe Arg Arg Gly Phe Arg Lys
 515 520 525
 Glu Asp Arg Asn Gly Arg Asp Glu Met Asp Ile Glu Leu His Asp Val
 530 535 540
 Ser Pro Ile Thr Arg His Pro Leu Gln Ala Leu Phe Ile Trp Ala Ile
 545 550 555 560
 Leu Gln Asn Lys Lys Glu Leu Ser Lys Val Ile Trp Glu Gln Thr Arg
 565 570 575
 Gly Cys Thr Leu Ala Ala Leu Gly Ala Ser Lys Leu Leu Lys Thr Leu
 580 585 590
 Ala Lys Val Lys Asn Asp Ile Asn Ala Ala Gly Glu Ser Glu Glu Leu
 595 600 605
 Ala Asn Glu Tyr Glu Thr Arg Ala Val Glu Leu Phe Thr Glu Cys Tyr
 610 615 620
 Ser Ser Asp Glu Asp Leu Ala Glu Gln Leu Leu Val Tyr Ser Cys Glu
 625 630 635 640
 Ala Trp Gly Gly Ser Asn Cys Leu Glu Leu Ala Val Glu Ala Thr Asp
 645 650 655
 Gln His Phe Ile Ala Gln Pro Gly Val Gln Asn Phe Leu Ser Lys Gln
 660 665 670
 Trp Tyr Gly Glu Ile Ser Arg Asp Thr Lys Asn Trp Lys Ile Ile Leu
 675 680 685
 Cys Leu Phe Ile Ile Pro Leu Val Gly Cys Gly Phe Val Ser Phe Arg
 690 695 700
 Lys Lys Pro Val Asp Lys His Lys Lys Leu Leu Trp Tyr Tyr Val Ala
 705 710 715 720

Phe Phe Thr Ser Pro Phe Val Val Phe Ser Trp Asn Val Val Phe Tyr
 725 730 735
 Ile Ala Phe Leu Leu Leu Phe Ala Tyr Val Leu Leu Met Asp Phe His
 740 745 750
 Ser Val Pro His Pro Pro Glu Leu Val Leu Tyr Ser Leu Val Phe Val
 755 760 765
 Leu Phe Cys Asp Glu Val Arg Gln Trp Tyr Val Asn Gly Val Asn Tyr
 770 775 780
 Phe Thr Asp Leu Trp Asn Val Met Asp Thr Leu Gly Leu Phe Tyr Phe
 785 790 795 800
 Ile Ala Gly Ile Val Phe Arg Leu His Ser Ser Asn Lys Ser Ser Leu
 805 810 815
 Tyr Ser Gly Arg Val Ile Phe Cys Leu Asp Tyr Ile Ile Phe Thr Leu
 820 825 830
 Arg Leu Ile His Ile Phe Thr Val Ser Arg Asn Leu Gly Pro Lys Ile
 835 840 845
 Ile Met Leu Gln Arg Met Leu Ile Asp Val Phe Phe Phe Leu Phe Leu
 850 855 860
 Phe Ala Xaa Trp Met Val Ala Phe Gly Val Ala Arg Gln Gly Ile Leu
 865 870 875 880
 Arg Gln Asn Glu Gln Arg Trp Arg Trp Ile Phe Arg Ser Val Ile Tyr
 885 890 895
 Glu Pro Tyr Leu Ala Met Phe Gly Gln Val Pro Ser Asp Val Asp Gly
 900 905 910
 Thr Thr Tyr Asp Phe Ala His Cys Thr Phe Thr Gly Asn Glu Ser Lys
 915 920 925
 Pro Leu Cys Val Glu Leu Asp Glu His Asn Leu Pro Arg Phe Pro Glu
 930 935 940
 Trp Ile Thr Ile Pro Leu Val Cys Ile Tyr Met Leu Ser Thr Asn Ile
 945 950 955 960
 Leu Leu Val Asn Leu Leu Val Ala Met Phe Gly Tyr Thr Val Gly Thr
 965 970 975
 Val Gln Glu Asn Asn Asp Gln Val Trp Lys Phe Gln Arg Tyr Phe Leu
 980 985 990
 Val Gln Glu Tyr Cys Ser Arg Leu Asn Ile Pro Phe Pro Phe Ile Val
 995 1000 1005
 Phe Ala Tyr Phe Tyr Met Val Val Lys Lys Cys Phe Lys Cys Cys Cys
 1010 1015 1020
 Lys Glu Lys Asn Met Glu Ser Ser Val Cys Cys Phe Lys Asn Glu Asp

| | | | |
|---|------|------|------|
| 1025 | 1030 | 1035 | 1040 |
| Asn Glu Thr Leu Ala Trp Glu Gly Val Met Lys Glu Asn Tyr Leu Val | | | |
| 1045 | | 1050 | 1055 |
| Lys Ile Asn Thr Lys Ala Asn Asp Thr Ser Glu Glu Met Arg His Arg | | | |
| 1060 | 1065 | | 1070 |
| Phe Arg Gln Leu Asp Thr Lys Leu Asn Asp Leu Lys Gly Leu Leu Lys | | | |
| 1075 | 1080 | 1085 | |
| Glu Ile Ala Asn Lys Ile Lys | | | |
| 1090 | 1095 | | |

<210> 638
 <211> 15
 <212> PRT
 <213> Homo sapiens

<400> 638
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 5 10 15

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 <212> DNA
 <213> Homo sapiens

<400> 639
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<210> 640
 <211> 45
 <212> DNA
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 gagccaggga gccagatggt ggaggccagc ctctccgtac ggcac 45

<210> 641
 <211> 45
 <212> DNA
 <213> Homo sapiens

<400> 641
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<210> 642
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 <212> DNA
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<400> 642
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<210> 643
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<212> DNA
<213> Homo sapiens

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<212> DNA
<213> Homo sapiens

<400> 644
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<210> 645
<211> 45
<212> DNA
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<400> 645
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<210> 646
<211> 45
<212> DNA
<213> Homo sapiens

<400> 646
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<210> 647
<211> 45
<212> DNA
<213> Homo sapiens

<400> 647
tcgggcgtcc tgggtcatcc gcagtgggtg ctgtcagccg cacac 45

<210> 648
<211> 45
<212> DNA
<213> Homo sapiens

<400> 648
aacgaattgt tctgctcggg cgtcctgggt catccgcagt ggggtg 45

<210> 649
<211> 45
<212> DNA
<213> Homo sapiens

<400> 649
gcactgggtc tggaaaacga attgttctgc tcgggcgtcc tgggtg 45

<210> 650
<211> 51


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<212> DNA
<213> Homo sapiens

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51

<210> 651
<211> 45
<212> DNA
<213> Homo sapiens

<400> 651
atcagcattg cttcgcagtg ccctaccgcg gggaactctt gcttc
45

<210> 652
<211> 45
<212> DNA
<213> Homo sapiens

<400> 652
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<210> 653
<211> 45
<212> DNA
<213> Homo sapiens

<400> 653
atcaagtgg acgaatccgt gtccgagtct gacaccatcc ggagc
45

<210> 654
<211> 45
<212> DNA
<213> Homo sapiens

<400> 654
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45

<210> 655
<211> 45
<212> DNA
<213> Homo sapiens

<400> 655
agacccttgc tcgctaacga cctcatgctc atcaagtgg acgaa
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<213> Homo sapiens

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5 10 15

<210> 657
<211> 15

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<212> PRT

<213> Homo sapiens

<400> 657

Glu Ala Asp Gln Glu Pro Gly Ser Gln Met Val Glu Ala Ser Leu
5 10 15

<210> 658

<211> 15

<212> PRT

<213> Homo sapiens

<400> 658

Gly Leu His Ser Leu Glu Ala Asp Gln Glu Pro Gly Ser Gln Met
5 10 15

<210> 659

<211> 15

<212> PRT

<213> Homo sapiens

<400> 659

Tyr Thr Ile Gly Leu Gly Leu His Ser Leu Glu Ala Asp Gln Glu
5 10 15

<210> 660

<211> 14

<212> PRT

<213> Homo sapiens

<400> 660

Phe Gln Asn Ser Tyr Thr Ile Gly Leu Gly Leu His Ser Leu
5 10

<210> 661

<211> 15

<212> PRT

<213> Homo sapiens

<400> 661

Leu Ser Ala Ala His Cys Phe Gln Asn Ser Tyr Thr Ile Gly Leu
5 10 15

<210> 662

<211> 15

<212> PRT

<213> Homo sapiens

<400> 662

His Pro Gln Trp Val Leu Ser Ala Ala His Cys Phe Gln Asn Ser
5 10 15

<210> 663
<211> 15
<212> PRT
<213> Homo sapiens

<400> 663
Ser Gly Val Leu Val His Pro Gln Trp Val Leu Ser Ala Ala His
5 10 15

<210> 664
<211> 15
<212> PRT
<213> Homo sapiens

<400> 664
Asn Glu Leu Phe Cys Ser Gly Val Leu Val His Pro Gln Trp Val
5 10 15

<210> 665
<211> 15
<212> PRT
<213> Homo sapiens

<400> 665
Ala Leu Val Met Glu Asn Glu Leu Phe Cys Ser Gly Val Leu Val
5 10 15

<210> 666
<211> 17
<212> PRT
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<400> 666
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5 10 15

Ser

<210> 667
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<212> PRT
<213> Homo sapiens

<400> 667
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5 10 15

<210> 668
<211> 15
<212> PRT
<213> Homo sapiens

<400> 668

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5 10 15

<210> 669

<211> 15

<212> PRT

<213> Homo sapiens

<400> 669

Ile Lys Leu Asp Glu Ser Val Ser Glu Ser Asp Thr Ile Arg Ser
5 10 15

<210> 670

<211> 15

<212> PRT

<213> Homo sapiens

<400> 670

Asn Asp Leu Met Leu Ile Lys Leu Asp Glu Ser Val Ser Glu Ser
5 10 15

<210> 671

<211> 15

<212> PRT

<213> Homo sapiens

<400> 671

Arg Pro Leu Leu Ala Asn Asp Leu Met Leu Ile Lys Leu Asp Glu
5 10 15

<210> 672

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 672

ggaccagcat atgaggaaca gaaggaatga cactc

35

<210> 673

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 673

ccgctcgagt ccacccaag cttcacag

29

<210> 674
 <211> 1959
 <212> DNA
 <213> Homo sapiens

<400> 674
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 aagaaacgag aatgtgtctt ctttaccaaa gattccaagg ccacggagaa tgtgtgcaag 180
 tgtgtgctatg ccacagagcca gcacatggaa ggcaccaga tcaaccaaa tgagaaatgg 240
 aactacaaga aacacaccaa ggaatttcct accgacgcct ttggggatgat tcatgtttgag 300
 acactggggga agaaagggaa gtatatacct ctgtctctgc acacggagcgc ggaatccctt 360
 tacgagctgc tgaccocgca ctggccactgc aaaacaccca acctggctcat ttctgtgacc 420
 gggggcgcca agaacttcgc cctgaagcgc cgcctgcgca agatcttcag ccggctcatc 480
 tacatcgccg agtccaaagg tgcttgatt ctacggggag gcaccatta tggcctgatg 540
 aagtacatgc gggaggtgggt gagagataac accatcagca ggagttcaga ggagaatatt 600
 gtggccaatg gcatagcagc ttggggcatg gtctccaaac gggacacccct catcaggaat 660
 tgcgatgtcg agggctatct tttagccagc taccttatgg atgacttcac aagagatcca 720
 ctgtatatcc tggacaacaa ccacacacat ttgctgctgc tggacaatgg ctgtcatgga 780
 catcccactg tccaagcaaa gctccggaat cagctagaga agtatatctc tgagcgcact 840
 attcaagatt ccaactatgg tggcaagatc cccattgtgt gttttgccca aggaggtgga 900
 aaagagactt tgaaggccat caatacctcc atcaaaaata aaattccctg tgtgtgtggt 960
 gaaggtctcg gccagatcgc tgatgtgatc gctagcctgg tggaggtgga ggaatgccctg 1020
 acatcttctg ccgtcaagga gaagctgggt cgctttttac ccgcacgcgt gtcccggctg 1080
 cctgaggagg agactgaag ttggatcaaa tggctcaaa aaattctoga atgtttctca 1140
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 tacgctctat acaagcctt cagcacaggt gagcaagaca aggataaact gaatggggag 1260
 ctgaaagctc tctgaagtg gaaccagctg gacttagcca atgatgagat ttaccacaa 1320
 gaccgcgat gggagctctg tgacctcaa gaagtcagt ttacggctct cataaaggac 1380
 agaccacagt ttgtccgct ctttctggag aatggcttga acctcggaa gttctcacc 1440
 catgatgtcc tcaactgaact cttctccaac cacttcagca cgcttggtga ccgggaactg 1500
 cagatcgcca agaattccta taatgatgcc ctctcacgt ttgtctgaa actggttgcg 1560
 aacttccgaa gaggcttccg gaaggaaagc agaaatggcc gggacgagat ggacatagaa 1620
 ctccacgagc tgtctctat tactcgccac cccctgcaag ctctcttcac ctgggccatt 1680
 cttcagaata agaaggaact ctccaaagtc atttgggagc agaccagggg ctgcactctg 1740
 gcagccctgg gagccagcaa gcttctgaag actctggcca aagtgaagaa cgacatcaat 1800
 gctgctgggg agtccagga gctggccta gatcacgga cccgggctgt tgagctgttc 1860
 actgagtgtt acagacgga tgaagaattg gcagaacagc tgctgtgcta ttctgtgaa 1920
 gcttgggggtg gactcgagca ccaccaccac caccactga 1959

<210> 675
 <211> 652
 <212> PRT
 <213> Homo sapiens

<400> 675
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 Ser Ser Ala Ser Arg Ser Thr Asp Leu Ser Tyr Ser Glu Ser Asp Leu
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 Val Asn Phe Ile Gln Ala Asn Phe Lys Lys Arg Glu Cys Val Phe Phe
 35 40 45
 Thr Lys Asp Ser Lys Ala Thr Glu Asn Val Cys Lys Cys Gly Tyr Ala
 50 55 60

Gln Ser Gln His Met Glu Gly Thr Gln Ile Asn Gln Ser Glu Lys Trp
 65 70 75 80
 Asn Tyr Lys Lys His Thr Lys Glu Phe Pro Thr Asp Ala Phe Gly Asp
 85 90 95
 Ile Gln Phe Glu Thr Leu Gly Lys Lys Gly Lys Tyr Ile Arg Leu Ser
 100 105 110
 Cys Asp Thr Asp Ala Glu Ile Leu Tyr Glu Leu Leu Thr Gln His Trp
 115 120 125
 His Leu Lys Thr Pro Asn Leu Val Ile Ser Val Thr Gly Gly Ala Lys
 130 135 140
 Asn Phe Ala Leu Lys Pro Arg Met Arg Lys Ile Phe Ser Arg Leu Ile
 145 150 155 160
 Tyr Ile Ala Gln Ser Lys Gly Ala Trp Ile Leu Thr Gly Gly Thr His
 165 170 175
 Tyr Gly Leu Met Lys Tyr Ile Gly Glu Val Val Arg Asp Asn Thr Ile
 180 185 190
 Ser Arg Ser Ser Glu Glu Asn Ile Val Ala Ile Gly Ile Ala Ala Trp
 195 200 205
 Gly Met Val Ser Asn Arg Asp Thr Leu Ile Arg Asn Cys Asp Ala Glu
 210 215 220
 Gly Tyr Phe Leu Ala Gln Tyr Leu Met Asp Asp Phe Thr Arg Asp Pro
 225 230 235 240
 Leu Tyr Ile Leu Asp Asn Asn His Thr His Leu Leu Leu Val Asp Asn
 245 250 255
 Gly Cys His Gly His Pro Thr Val Glu Ala Lys Leu Arg Asn Gln Leu
 260 265 270
 Glu Lys Tyr Ile Ser Glu Arg Thr Ile Gln Asp Ser Asn Tyr Gly Gly
 275 280 285
 Lys Ile Pro Ile Val Cys Phe Ala Gln Gly Gly Gly Lys Glu Thr Leu
 290 295 300
 Lys Ala Ile Asn Thr Ser Ile Lys Asn Lys Ile Pro Cys Val Val Val
 305 310 315 320
 Glu Gly Ser Gly Gln Ile Ala Asp Val Ile Ala Ser Leu Val Glu Val
 325 330 335
 Glu Asp Ala Leu Thr Ser Ser Ala Val Lys Glu Lys Leu Val Arg Phe
 340 345 350
 Leu Pro Arg Thr Val Ser Arg Leu Pro Glu Glu Glu Thr Glu Ser Trp
 355 360 365
 Ile Lys Trp Leu Lys Glu Ile Leu Glu Cys Ser His Leu Leu Thr Val

| | | |
|--|-----|-----|
| 370 | 375 | 380 |
| Ile Lys Met Glu Glu Ala Gly Asp Glu Ile Val Ser Asn Ala Ile Ser 385 390 395 400 | | |
| Tyr Ala Leu Tyr Lys Ala Phe Ser Thr Ser Glu Gln Asp Lys Asp Asn 405 410 415 | | |
| Trp Asn Gly Gln Leu Lys Leu Leu Leu Glu Trp Asn Gln Leu Asp Leu 420 425 430 | | |
| Ala Asn Asp Glu Ile Phe Thr Asn Asp Arg Arg Trp Glu Ser Ala Asp 435 440 445 | | |
| Leu Gln Glu Val Met Phe Thr Ala Leu Ile Lys Asp Arg Pro Lys Phe 450 455 460 | | |
| Val Arg Leu Phe Leu Glu Asn Gly Leu Asn Leu Arg Lys Phe Leu Thr 465 470 475 480 | | |
| His Asp Val Leu Thr Glu Leu Phe Ser Asn His Phe Ser Thr Leu Val 485 490 495 | | |
| Tyr Arg Asn Leu Glu Ile Ala Lys Asn Ser Tyr Asn Asp Ala Leu Leu 500 505 510 | | |
| Thr Phe Val Trp Lys Leu Val Ala Asn Phe Arg Arg Gly Phe Arg Lys 515 520 525 | | |
| Glu Asp Arg Asn Gly Arg Asp Glu Met Asp Ile Glu Leu His Asp Val 530 535 540 | | |
| Ser Pro Ile Thr Arg His Pro Leu Gln Ala Leu Phe Ile Trp Ala Ile 545 550 555 560 | | |
| Leu Gln Asn Lys Lys Glu Leu Ser Lys Val Ile Trp Glu Gln Thr Arg 565 570 575 | | |
| Gly Cys Thr Leu Ala Ala Leu Gly Ala Ser Lys Leu Leu Lys Thr Leu 580 585 590 | | |
| Ala Lys Val Lys Asn Asp Ile Asn Ala Ala Gly Glu Ser Glu Glu Leu 595 600 605 | | |
| Ala Asn Glu Tyr Glu Thr Arg Ala Val Glu Leu Phe Thr Glu Cys Tyr 610 615 620 | | |
| Ser Ser Asp Glu Asp Leu Ala Glu Gln Leu Leu Val Tyr Ser Cys Glu 625 630 635 640 | | |
| Ala Trp Gly Gly Leu Glu His His His His His His 645 650 | | |

<210> 676

<211> 132

<212> PRT

<213> Homo sapien

<400> 676

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Thr Ala Ala Ser Asp Asn Phe Gln Leu Ser Gln Gly Gly Gln Gly Phe
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20      25      30
Gly Gly Gly Ser Pro Thr Val His Ile Gly Pro Thr Ala Phe Leu Gly
35      40      45
Leu Gly Val Val Asp Asn Asn Gly Asn Gly Ala Arg Val Gln Arg Val
50      55      60
Val Gly Ser Ala Pro Ala Ala Ser Leu Gly Ile Ser Thr Gly Asp Val
65      70      75      80
Ile Thr Ala Val Asp Gly Ala Pro Ile Asn Ser Ala Thr Ala Met Ala
85      90      95
Asp Ala Leu Asn Gly His His Pro Gly Asp Val Ile Ser Val Asn Trp
100     105     110
Gln Thr Lys Ser Gly Gly Thr Arg Thr Gly Asn Val Thr Leu Ala Glu
115     120     125
Gly Pro Pro Ala
130

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<210> 677

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 677

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36

<210> 678

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 678

gggctcagtg caggagtttg agaccagcct ggc

33

<210> 679

<211> 675

<212> DNA

<213> Homo sapiens

<400> 679

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cagggattcg ccattccgat cgggcaggcg atggcgatcg cgggccagat caagcttccc 120

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accgttcata tcgggcctac cgccttcctc ggcttgggtg ttgtcgacaa caacggcaac 180
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gagaaatttg ccaactgcac cgtgctaacc attgcacaca gattgaacac cattattgac 480
agcgacaaga taatgggttt agattcagga agactgaaag aatatgatga gcggtatgtt 540
ttgctgcaaa ataaagagag cctattttac aaactgggtc caaggcagaa 600
ggcgcgtgcc tcactgaaac agcaaaacag agatgggggt tcaccatggt ggccaggcgtg 660
gtctcaaac cctga

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<210> 680
 <211> 291
 <212> DNA
 <213> Homo sapiens

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<400> 680
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accattattg acagcgacaa gataatggtt ttagattcag gaagactgaa agaatatgat 120
gagccgatag ttttgctgca aataaaagag agcctatgtt acaagatggt gcaacaactg 180
ggcaaggcag aagccgctgc cctcactgaa acagcaaaac agagatgggg ttccaccatg 240
ttggccaggc tgggtctcaa ctccctcgag caccaccacc accaccactg a 291

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<210> 681
 <211> 1074
 <212> DNA
 <213> Homo sapiens

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<400> 681
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gtgcatgtgc aggattttac tgctttttgg gataaggcat cagagacccc aactctacaa 180
ggcctttcct ttactgtcag acctggcgaa ttgttagctg ttggtcgccc cgtgggagca 240
gggaagtcac cactgttaag tgccgtgctc ggggaattgg ccccaagtca cgggctggct 300
agcgtgcatg gaagaattgc ctatgtgtct cagcagccct ggggtgtctc gggaactctg 360
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gcttgtgtct tgaaaaagga ttacacgtgc ttggaggatg gtgactgcac tgtgatagga 480
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cttttaaaga aggataatga ggaaagtga caacctccag ttccaggaac tcccacaacta 840
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aaagatgggt cctctggagag ccaagataca gagaatgtcc cagttacact atcagaggag 960
aaccgtctct aaggaaaagt tggttttcag gcctataaga attacttcag agtcgggtgt 1020
cactggattg tcttcatttt ccttattctc gagcaccacc accaccacca ctga 1074

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<210> 682
 <211> 224
 <212> PRT
 <213> Homo sapiens

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<400> 682
Met His His His His His Thr Ala Ala Ser Asp Asn Phe Gln Leu
          5                               10                15

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Ser Gln Gly Gly Gln Gly Phe Ala Ile Pro Ile Gly Gln Ala Met Ala

```

| 20 | | | | | 25 | | | | | 30 | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ile | Ala | Gly | Gln | Ile | Lys | Leu | Pro | Thr | Val | His | Ile | Gly | Pro | Thr | Ala | |
| 35 | | | | | 40 | | | | | 45 | | | | | | |
| Phe | Leu | Gly | Leu | Gly | Val | Val | Asp | Asn | Asn | Gly | Asn | Gly | Ala | Arg | Val | |
| 50 | | | | | 55 | | | | | 60 | | | | | | |
| Gln | Arg | Val | Val | Gly | Ser | Ala | Pro | Ala | Ala | Ser | Leu | Gly | Ile | Ser | Thr | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| Gly | Asp | Val | Ile | Thr | Ala | Val | Asp | Gly | Ala | Pro | Ile | Asn | Ser | Ala | Thr | |
| 85 | | | | | 90 | | | | | 95 | | | | | | |
| Ala | Met | Ala | Asp | Ala | Leu | Asn | Gly | His | His | Pro | Gly | Asp | Val | Ile | Ser | |
| 100 | | | | | 105 | | | | | 110 | | | | | | |
| Val | Thr | Trp | Gln | Thr | Lys | Ser | Gly | Gly | Thr | Arg | Thr | Gly | Asn | Val | Thr | |
| 115 | | | | | 120 | | | | | 125 | | | | | | |
| Leu | Ala | Glu | Gly | Pro | Pro | Ala | Glu | Phe | Met | Ile | Arg | Glu | Lys | Phe | Ala | |
| 130 | | | | | 135 | | | | | 140 | | | | | | |
| His | Cys | Thr | Val | Leu | Thr | Ile | Ala | His | Arg | Leu | Asn | Thr | Ile | Ile | Asp | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Ser | Asp | Lys | Ile | Met | Val | Leu | Asp | Ser | Gly | Arg | Leu | Lys | Glu | Tyr | Asp | |
| 165 | | | | | 170 | | | | | 175 | | | | | | |
| Glu | Pro | Tyr | Val | Leu | Leu | Gln | Asn | Lys | Glu | Ser | Leu | Phe | Tyr | Lys | Met | |
| 180 | | | | | 185 | | | | | 190 | | | | | | |
| Val | Gln | Gln | Leu | Gly | Lys | Ala | Glu | Ala | Ala | Ala | Leu | Thr | Glu | Thr | Ala | |
| 195 | | | | | 200 | | | | | 205 | | | | | | |
| Lys | Gln | Arg | Trp | Gly | Phe | Thr | Met | Leu | Ala | Arg | Leu | Val | Ser | Asn | Ser | |
| 210 | | | | | 215 | | | | | 220 | | | | | | |

```
<210> 683
<211> 357
<212> PRT
<213> Homo sapiens
```

<400> 683
Met Ser Ala Ile Glu Arg Val Ser Glu Ala Ile Val Ser Ile Arg Arg
5 10 15
Ile Gln Thr Phe Leu Leu Leu Asp Glu Ile Ser Gln Arg Asn Arg Gln
20 25 30
Leu Pro Ser Ser Asp Gly Lys Lys Met Val His Val Gln Asp Phe Thr Ala
35 40 45
Phe Trp Asp Lys Ala Ser Glu Thr Pro Thr Leu Gln Gly Leu Ser Phe

| | | |
|---|-----|-------------|
| 50 | 55 | 60 |
| Thr Val Arg Pro Gly Glu Leu Leu Ala Val Val Gly Pro Val Gly Ala | | |
| 65 | 70 | 75 80 |
| Gly Lys Ser Ser Leu Leu Ser Ala Val Leu Gly Glu Leu Ala Pro Ser | | |
| | 85 | 90 95 |
| His Gly Leu Val Ser Val His Gly Arg Ile Ala Tyr Val Ser Gln Gln | | |
| | 100 | 105 110 |
| Pro Trp Val Phe Ser Gly Thr Leu Arg Ser Asn Ile Leu Phe Gly Lys | | |
| | 115 | 120 125 |
| Lys Tyr Glu Lys Glu Arg Tyr Glu Lys Val Ile Lys Ala Cys Ala Leu | | |
| | 130 | 135 140 |
| Lys Lys Asp Leu Gln Leu Leu Glu Asp Gly Asp Leu Thr Val Ile Gly | | |
| | 145 | 150 155 160 |
| Asp Arg Gly Thr Thr Leu Ser Gly Gly Gln Lys Ala Arg Val Asn Leu | | |
| | 165 | 170 175 |
| Ala Arg Ala Val Tyr Gln Asp Ala Asp Ile Tyr Leu Leu Asp Asp Pro | | |
| | 180 | 185 190 |
| Leu Ser Ala Val Asp Ala Glu Val Ser Arg His Leu Phe Glu Leu Cys | | |
| | 195 | 200 205 |
| Ile Cys Gln Ile Leu His Glu Lys Ile Thr Ile Leu Val Thr His Gln | | |
| | 210 | 215 220 |
| Leu Gln Tyr Leu Lys Ala Ala Ser Gln Ile Leu Ile Leu Lys Asp Gly | | |
| | 225 | 230 235 240 |
| Lys Met Val Gln Lys Gly Thr Tyr Thr Glu Phe Leu Lys Ser Gly Ile | | |
| | 245 | 250 255 |
| Asp Phe Gly Ser Leu Leu Lys Lys Asp Asn Glu Glu Ser Glu Gln Pro | | |
| | 260 | 265 270 |
| Pro Val Pro Gly Thr Pro Thr Leu Arg Asn Arg Thr Phe Ser Glu Ser | | |
| | 275 | 280 285 |
| Ser Val Trp Ser Gln Gln Ser Ser Arg Pro Ser Leu Lys Asp Gly Ala | | |
| | 290 | 295 300 |
| Leu Glu Ser Gln Asp Thr Glu Asn Val Pro Val Thr Leu Ser Glu Glu | | |
| | 305 | 310 315 320 |
| Asn Arg Ser Glu Gly Lys Val Gly Phe Gln Ala Tyr Lys Asn Tyr Phe | | |
| | 325 | 330 335 |
| Arg Ala Gly Ala His Trp Ile Val Phe Ile Phe Leu Ile Leu Glu His | | |
| | 340 | 345 350 |
| His His His His His | | |
| | 355 | |

<210> 684
 <211> 96
 <212> PRT
 <213> Homo sapiens

<400> 684
 Met Gly Ile Arg Glu Lys Phe Ala His Cys Thr Val Leu Thr Ile Ala
 5 10 15
 His Arg Leu Asn Thr Ile Ile Asp Ser Asp Lys Ile Met Val Leu Asp
 20 25 30
 Ser Gly Arg Leu Lys Glu Tyr Asp Glu Pro Tyr Val Leu Leu Gln Asn
 35 40 45
 Lys Glu Ser Leu Phe Tyr Lys Met Val Gln Gln Leu Gly Lys Ala Glu
 50 55 60
 Ala Ala Ala Leu Thr Glu Thr Ala Lys Gln Arg Trp Gly Phe Thr Met
 65 70 75 80
 Leu Ala Arg Leu Val Ser Asn Ser Leu Glu His His His His His His
 85 90 95

<210> 685
 <211> 35
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR primer

<400> 685
 cgcccatggg gatccgggag aaatttggcc actgc 35

<210> 686
 <211> 35
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR primer

<400> 686
 cgcctcgagg gagtttgaga ccagcctggc caaca 35

<210> 687
 <211> 38
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR primer

<400> 687
gcattgaccca tatgtcagcc attgagaggg tgctcagag 38

<210> 688
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 688
ccgctcgcaga ataaggaaaa tgaagacaat ccag 34

<210> 689
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 689
gttgaattca tgcacggggc ccagggtg 27

<210> 690
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 690
cccttcgagtc cactatgggtc tgcctcttga 30

<210> 691
<211> 915
<212> DNA
<213> Homo sapiens

<400> 691
atgcataccc atcaccatca caggccgcgc tccgataact tccagctgtc ccagggtggg 60
cagggattcg ccattccgat cgggcaggcg atggcgatcg cgggccagat caagcttccc 120
accgttcata tcgggcctac cgccttctct ggcttgggtg ttgtcgacaa caacggcaca 180
ggcgacagag tccaacgcgt ggtcgggagc gctccggcgg caagtctcgg catctccacc 240
ggcgacgtga tcaccgcgtt cgacgcgcgt ccgatcaact cggccaccgc gatgcgggac 300
ggccttaaac ggcctcatcc cgggtcagtc atctcgttga cctggcaaac caagtccggc 360
ggcacgcgtg cagggaacgt gacattggcc gagggacccc cggccgaatt catgcacggg 420
cccagggtgc tggcacgctg ctcogagtggt gcttgctctg ccttggtctg caccctctgc 480
gggtgtcgct tggagggggt ggacgggcca ccaaccttac ccagtcaagg aagtgtgattg 540
ccatgttccc acagcctgag ttgctgccac ctgatggctg atggagcaaa ggccttagga 600
aaagcagatg gcccttggcc ctaccttttt gttagaagaa ctgatgttcc atgtcctgca 660
gcgagtgagg ttggttgctg tgccccacgc tctggcgcgc ccctcgacga ggtgactggt 720

| | | | | | | |
|------------|------------|------------|------------|------------|-------------|-----|
| tgctctttgg | gccctcttgg | ccttgcccag | catgcacaag | cctcagtgct | actactgtgc | 780 |
| tacaaatgga | gccatatagg | ggaaacgagc | agccatctca | ggagcaaggt | gtatgctgcc | 840 |
| tttgggggct | cctagctctt | cctcaagggt | cttatgtcac | tgtgggcttc | tgtgtgtgtca | 900 |
| aaagcctaac | catatg | | | | | 915 |

```
<210> 692
<211> 304
<212> PRT
<213> Homo sapiens
```

4400> 692

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | His | His | His | His | His | His | Thr | Ala | Ala | Ser | Asp | Asn | Phe | Gln | Leu |
| | | | | 5 | | | | | | | | | | 15 | |
| Ser | Gln | Gly | Gly | Gln | Gly | Phe | Ala | Ile | Pro | Ile | Gly | Gln | Ala | Met | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ile | Ala | Gly | Gln | Ile | Lys | Leu | Pro | Thr | Val | His | Ile | Gly | Pro | Thr | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Phe | Leu | Gly | Leu | Gly | Val | Val | Asp | Asn | Asn | Gly | Asn | Gly | Ala | Arg | Val |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Gln | Arg | Val | Val | Gly | Ser | Ala | Pro | Ala | Ala | Ser | Leu | Gly | Ile | Ser | Thr |
| | 65 | | | | 70 | | | | | 75 | | | | 80 | |
| Gly | Asp | Val | Ile | Thr | Ala | Val | Asp | Gly | Ala | Pro | Ile | Asn | Ser | Ala | Thr |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Ala | Met | Ala | Asp | Ala | Leu | Asn | Gly | His | His | Pro | Gly | Asp | Val | Ile | Ser |
| | | 100 | | | | | | 105 | | | | | 110 | | |
| Val | Thr | Trp | Gln | Thr | Lys | Ser | Gly | Gly | Thr | Arg | Thr | Gly | Asn | Val | Thr |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Leu | Ala | Glu | Gly | Pro | Pro | Ala | Glu | Phe | Met | His | Gly | Pro | Gln | Val | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ala | Arg | Cys | Ser | Glu | Cys | Ala | Cys | Pro | Ala | Leu | Ala | Ala | Thr | Ser | Ala |
| | 145 | | | | 150 | | | | | 155 | | | | 160 | |
| Gly | Val | Arg | Leu | Glu | Gly | Val | Asp | Arg | Pro | Pro | Thr | Leu | Pro | Ser | Gln |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Gly | Ser | Gly | Trp | Pro | Cys | Ser | His | Ser | Leu | Ser | Gly | Cys | His | Leu | Met |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Ala | Asp | Gly | Ala | Lys | Ala | Leu | Gly | Lys | Ala | Asp | Gly | Pro | Trp | Pro | Tyr |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Leu | Phe | Val | Arg | Arg | Thr | Asp | Val | Pro | Cys | Pro | Ala | Ala | Ser | Glu | Val |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Gly | Gly | Cys | Ala | Pro | Ser | Ser | Trp | Arg | Ala | Leu | Ala | Glu | Val | Thr | Gly |
| | 225 | | | | 230 | | | | | 235 | | | | 240 | |
| Cys | Ser | Leu | Gly | Pro | Leu | Gly | Leu | Ala | Gln | His | Ala | Gln | Ala | Ser | Val |
| | | | 245 | | | | | 250 | | | | | 255 | | |

Leu Leu Leu Cys Tyr Lys Trp Ser His Ile Gly Glu Thr Ser Ser His
260 265 270

Leu Arg Ser Lys Val Tyr Ala Ala Phe Gly Gly Ser Ser Pro Cys Leu
275 280 285

Lys Gly Leu Met Ser Leu Trp Ala Ser Trp Leu Ser Arg Gly Arg Pro
290 295 300

<210> 693
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 693
cgaagtcacg tggaggccag cctc

24

<210> 694
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 694
cctgaccgaa ttcattaact ggccctggac

29

<210> 695
<211> 166
<212> PRT
<213> Homo sapiens

<220>
<221> VARIANT
<222> (1)...(166)
<223> Xaa = Any Amino Acid

<400> 695
Met Gly His His His His His Val Glu Ala Ser Leu Ser Val Arg
1 5 10 15
His Pro Glu Tyr Asn Arg Pro Leu Leu Ala Asn Asp Leu Met Leu Ile
20 25 30
Lys Leu Asp Glu Ser Val Ser Glu Ser Asp Thr Ile Arg Ser Ile Ser
35 40 45
Ile Ala Ser Gln Cys Pro Thr Ala Gly Asn Ser Cys Leu Val Ser Gly
50 55 60
Trp Gly Leu Leu Ala Asn Gly Arg Met Pro Thr Val Leu Gln Cys Val
65 70 75 80
Asn Val Ser Val Val Ser Glu Glu Val Cys Ser Lys Leu Tyr Asp Pro

| | | | | | |
|---|-----|--|-----|--|-----|
| | 85 | | 90 | | 95 |
| Leu Tyr His Pro Ser Met Phe Cys Ala Gly Gly Gly Gln Xaa Gln Xaa | | | | | |
| | 100 | | 105 | | 110 |
| Asp Ser Cys Asn Gly Asp Ser Gly Gly Pro Leu Ile Cys Asn Gly Tyr | | | | | |
| | 115 | | 120 | | 125 |
| Leu Gln Gly Leu Val Ser Phe Gly Lys Ala Pro Cys Gly Gln Val Gly | | | | | |
| | 130 | | 135 | | 140 |
| Val Pro Gly Val Tyr Thr Asn Leu Cys Lys Phe Thr Glu Trp Ile Glu | | | | | |
| | 145 | | 150 | | 155 |
| Lys Thr Val Gln Ala Ser | | | | | 160 |
| | 165 | | | | |

<210> 696
 <211> 504
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)...(504)
 <223> n = A,T,C or G

| | |
|---|-----|
| <400> 696 | |
| atggggccatc atcatcatca tcacgtggag gccagcctct ccgtacggca cccagagtac | 60 |
| aacagaccct tgcctcgtaa cgacctcatg ctcatcaagt tggacgaatc cgtgtccgag | 120 |
| tctgacacca tccggagcat cagcattgct tcgcagtgcc ctaccgcggg gaactcttgc | 180 |
| ctcgtttctg gctggggctct gctggcgaaac ggcaagaatgc ctaccgtgct gcagtgcggtg | 240 |
| aacgtgtcgg tgggtgtctga ggagggtctgc agtaagctct atgaccgcgt gtaccacccc | 300 |
| agcatgttct gcgccggcgg agggcaanac cagaangact cctgcaacgg tgactctggg | 360 |
| gggccccctga tctgcaacgg gtacttgca ggccttgtgt ctttcggaaa agccccgtgt | 420 |
| ggccaagttg gcgtgccagg tgtctacacc aacctctgca aattcactga gtggatagag | 480 |
| aaaaccgtcc aggccagtta atga | 504 |

<210> 697
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR primer

| | |
|--------------------------|----|
| <400> 697 | |
| ctcaggggttc cggagccgcg g | 21 |

<210> 698
 <211> 35
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR primer

| | |
|---------------------------------------|----|
| <400> 698 | |
| ctatagaatt cattacaaa aagctgggct ccagc | 35 |

<210> 699

<211> 241
 <212> PRT
 <213> Homo sapiens

<400> 699
 Met Gln His His His His His His Leu Arg Val Pro Glu Pro Arg Pro
 1 5 10 15
 Gly Glu Ala Lys Ala Glu Gly Ala Ala Pro Thr Pro Ser Lys Pro
 20 25 30
 Leu Thr Ser Phe Leu Ile Gln Asp Ile Leu Arg Asp Gly Ala Gln Arg
 35 40 45
 Gln Gly Arg Thr Ser Ser Gln Arg Gln Arg Asp Pro Glu Pro Glu
 50 55 60
 Pro Glu Pro Glu Pro Glu Gly Gly Arg Ser Arg Ala Gly Ala Gln Asn
 65 70 75 80
 Asp Gln Leu Ser Thr Gly Pro Arg Ala Ala Pro Glu Glu Ala Glu Thr
 85 90 95
 Leu Ala Glu Thr Glu Pro Glu Arg His Leu Gly Ser Tyr Leu Leu Asp
 100 105 110
 Ser Glu Asn Thr Ser Gly Ala Leu Pro Arg Leu Pro Gln Thr Pro Lys
 115 120 125
 Gln Pro Gln Lys Arg Ser Arg Ala Ala Phe Ser His Thr Gln Val Ile
 130 135 140
 Glu Leu Glu Arg Lys Phe Ser His Gln Lys Tyr Leu Ser Ala Pro Glu
 145 150 155 160
 Arg Ala His Leu Ala Lys Asn Leu Lys Leu Thr Glu Thr Gln Val Lys
 165 170 175
 Ile Trp Phe Gln Asn Arg Arg Tyr Lys Thr Lys Arg Lys Gln Leu Ser
 180 185 190
 Ser Glu Leu Gly Asp Leu Glu Lys His Ser Ser Leu Pro Ala Leu Lys
 195 200 205
 Glu Glu Ala Phe Ser Arg Ala Ser Leu Val Ser Val Tyr Asn Ser Tyr
 210 215 220
 Pro Tyr Tyr Pro Tyr Leu Tyr Cys Val Gly Ser Trp Ser Pro Ala Phe
 225 230 235 240
 Trp

<210> 700
 <211> 729
 <212> DNA
 <213> Homo sapiens

<400> 700
 atgcagcctc accaccatca ccacctcagg gttccggagg cgcggcccg ggaggcgaaa 60
 cgggaggggg ccgcgccgccc gaccccgtcc aagccgctca cgtccttcc catccaggac 120
 atcctgcggg acggcgcgca cgggcaaggc ggccgcacga gcagccagag acagccgcgac 180
 ccggagccgg agccagagcc agagccagag ggaggacgca gccgcgccgg ggcgcagagac 240
 gaccagctga gcaccgggccc ccgcgccgccc ccggatgagg ccgagacgtc ggcagagacc 300
 gaccagaaa ggcacttggg gtcttatctg ttggaactctg aaaacacttc aggcggccctt 360
 ccaaggcttc cccaaacccc taagcagccg cagaagcgct ccgagctgc ctctccacc 420
 actcaggtga tcgagttgga gaggaagttc agccatcaga agtacctgtc ggcccctgaa 480
 cgggcccacc tggccaagaa cctcaagctc agggagaccc aagtgaagat atggttccag 540
 aacagacgct ataagactaa gcgaagcag ctctcctcgg agctgggga cttggagaag 600
 cactcctttt tgcggccctt gaaagaggag gccttctccc gggcctccct ggtctccgtg 660
 tataacagct atccttacta cccatccctg cactgcgtgg gcagctggag cccagctttt 720
 tggtaatga 729

<210> 701
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR primer

<400> 701
 ctactaagcg ctggagtgag ggatcag

27

<210> 702
 <211> 33
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR primer

<400> 702
 catcgagaat tcactactct ctgactagat gtc

33

<210> 703
 <211> 161
 <212> PRT
 <213> Homo sapiens

<400> 703
 Met Gln His His His His His Ala Gly Val Arg Asp Gln Gly Gln
 1 5 10 15
 Gly Ala Arg Trp Pro His Thr Gly Lys Arg Gly Pro Leu Leu Gln Gly
 20 25 30
 Leu Thr Trp Ala Thr Gly Gly His Cys Phe Ser Ser Glu Glu Ser Gly
 35 40 45
 Ala Val Asp Gly Ala Gly Gln Lys Lys Asp Arg Ala Trp Leu Arg Cys
 50 55 60
 Pro Glu Ala Val Ala Gly Phe Pro Leu Gly Ser Asp Cys Arg Glu Gly
 65 70 75 80
 Gly Arg Gln Gly Cys Gly Gly Ser Asp Asp Glu Asp Asp Leu Gly Val
 85 90 95
 Ala Pro Gly Leu Ala Pro Ala Trp Ala Leu Thr Gln Pro Pro Ser Gln
 100 105 110
 Ser Pro Gly Pro Gln Ser Leu Pro Ser Thr Pro Ser Ile Trp Pro
 115 120 125
 Gln Trp Val Ile Leu Ile Thr Glu Leu Thr Ile Pro Ser Pro Ala His
 130 135 140
 Gly Pro Pro Trp Leu Pro Asn Ala Leu Glu Arg Gly His Leu Val Arg
 145 150 155 160
 Glu

<210> 704
 <211> 489
 <212> DNA
 <213> Homo sapiens

<400> 704
 atgcagcatc accaccatca ccacgctgga gtgagggatc aggggcaggg cgcgagatgg 60
 cctcacacag ggaagagagg gcccctcctg cagggcctca cctgggccac aggaggacac 120
 tgcttttctc ctgaggatgc aggagctgtg gatgtgtctg gacagaagaa ggacaggggc 180
 tggctcaggt gtccagaggc tgtcgctggc ttccctttgg gatcagactg caggagggga 240
 gggcggcagg gttgtggggg gattgacgat gaggatgacc tgggggtggc tccaggcctt 300
 gccctgcctc gggccctcac ccagcctccc tcacagtctc ctggccctca gtctctcccc 360
 tccactcact cctccatctg gccctcagtg gtcattctga tcaactgaact gaccataccc 420
 agccctgccc acggccctcc atggctcccc aatgccctgg agaggggaca tctagtccaga 480
 gagtagtga 489

<210> 705
 <211> 132
 <212> PRT
 <213> Homo sapiens

<400> 705
 Thr Ala Ala Ser Asp Asn Phe Gln Leu Ser Gln Gly Gly Gln Gly Phe
 1 5 10 15
 Ala Ile Pro Ile Gly Gln Ala Met Ala Ile Ala Gly Gln Ile Arg Ser
 20 25 30
 Gly Gly Gly Ser Pro Thr Val His Ile Gly Pro Thr Ala Phe Leu Gly
 35 40 45
 Leu Gly Val Val Asp Asn Asn Gly Asn Gly Ala Arg Val Gln Arg Val
 50 55 60
 Val Gly Ser Ala Pro Ala Ala Ser Leu Gly Ile Ser Thr Gly Asp Val
 65 70 75 80
 Ile Thr Ala Val Asp Gly Ala Pro Ile Asn Ser Ala Thr Ala Met Ala
 85 90 95
 Asp Ala Leu Asn Gly His His Pro Gly Asp Val Ile Ser Val Asn Trp
 100 105 110
 Gln Thr Lys Ser Gly Gly Thr Arg Thr Gly Asn Val Thr Leu Ala Glu
 115 120 125
 Gly Pro Pro Ala
 130

<210> 706
 <211> 31
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR primer

<400> 706
 ggggaattca tcacctatgt gccgcctctg c

31

<210> 707
 <211> 40
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR primer

<400> 707
gggctcgagt cactcgccca cgaatccgt gtaaaacagc

40

<210> 708
<211> 1203
<212> DNA
<213> Homo sapiens

<400> 708
atgcateacc atcaccatca cacggccgag tcgataact tccagctgtc ccagggtggg 60
cagggattcg ccattccgat cgggcaggcg atggcgatcg cgggccagat caagcttccc 120
accgttcata tcgggcctac cgcttctctc ggcttgggtg ttgtcgacaa caacggcaac 180
ggcgacagag tccaaocggt ggtcgggagc gctcggcgcg caagtctcgg catctccacc 240
ggcgacgtga tcaccgcggt cgacggcgct ccgatcaact cggccaccgc gatggcgagc 300
ggccttaacg ggcacatccc cggtagcgtc atctcggtga cctggcaaac caagtccggc 360
ggcaccgcta cagggaacgt gacattggcc gagggacccc cggccgaatt catcacctat 420
gtcccgcttc tgctgctgga agtgggggta gaggagaagt tcatgacctt ggtgctgggc 480
attggtccag tgctgggctt ggtctgtgtc ccgctcctag gctcagccag tgaccactgg 540
cgtggacgct atggccgccc cggcccttcc atctggcgac tgccttggg catcctgctg 600
agcctctttc tcattccaaag ggccgctggg ctacgagggc tgctgtgccc ggtatccagg 660
cccctggagc tggcactgct catcctgggc gtggggctgc tggactctgt tggccagggt 720
tgcttcaact cactggaggg cctgctctct gacctcttc gggaccggga ccaactgtgc 780
caggccctact ctgtctatgc ctctcatgat agtcttggg gctgcttggg ctacctcctg 840
cctggcaatt cgtgggacac cagtgccttg gccccctacc tgggacacca ggaggagctg 900
ctctttggcc tgcacacct catcttctcc acctgcgtag cacgccact gctggtggct 960
gaggaggcag cgtggggccc caccgagcca gcagaagggc tgtcggcccc ctctgtgctc 1020
cccactgct gtccatgcgg ggcccgcttg gctttccgga acctgggcgc cctgcttccc 1080
cggctgccc agctgtgctg ccgcatgcgc cgacacctgc gccgctctt cgtggctgag 1140
ctgtgcagct gtagggcact catgaccttc acgctgtttt acacggattt cgtggcgag 1200
tga 1203

<210> 709
<211> 400
<212> PRT
<213> Homo sapiens

<400> 709
Met His His His His His Thr Ala Ala Ser Asp Asn Phe Gln Leu
5 10 15
Ser Gln Gly Gly Gln Gly Phe Ala Ile Pro Ile Gly Gln Ala Met Ala
20 25 30
Ile Ala Gly Gln Ile Lys Leu Pro Thr Val His Ile Gly Pro Thr Ala
35 40 45
Phe Leu Gly Leu Gly Val Val Asp Asn Asn Gly Asn Gly Ala Arg Val
50 55 60
Gln Arg Val Val Gly Ser Ala Pro Ala Ala Ser Leu Gly Ile Ser Thr
65 70 75 80
Gly Asp Val Ile Thr Ala Val Asp Gly Ala Pro Ile Asn Ser Ala Thr
85 90 95
Ala Met Ala Asp Ala Leu Asn Gly His His Pro Gly Asp Val Ile Ser

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| Val Thr Trp Gln Thr Lys Ser Gly Gly Thr Arg Thr Gly Asn Val Thr | | |
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| Leu Ala Glu Gly Pro Pro Ala Glu Phe Ile Thr Tyr Val Pro Pro Leu | | |
| 130 | 135 | 140 |
| Leu Leu Glu Val Gly Val Glu Glu Lys Phe Met Thr Met Val Leu Gly | | |
| 145 | 150 | 155 |
| Ile Gly Pro Val Leu Gly Leu Val Cys Val Pro Leu Leu Gly Ser Ala | | |
| 165 | 170 | 175 |
| Ser Asp His Trp Arg Gly Arg Tyr Gly Arg Arg Arg Pro Phe Ile Trp | | |
| 180 | 185 | 190 |
| Ala Leu Ser Leu Gly Ile Leu Leu Ser Leu Phe Leu Ile Pro Arg Ala | | |
| 195 | 200 | 205 |
| Gly Trp Leu Ala Gly Leu Leu Cys Pro Asp Pro Arg Pro Leu Glu Leu | | |
| 210 | 215 | 220 |
| Ala Leu Leu Ile Leu Gly Val Gly Leu Leu Asp Phe Cys Gly Gln Val | | |
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| Cys Phe Thr Pro Leu Glu Ala Leu Leu Ser Asp Leu Phe Arg Asp Pro | | |
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| Asp His Cys Arg Gln Ala Tyr Ser Val Tyr Ala Phe Met Ile Ser Leu | | |
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| Gly Gly Cys Leu Gly Tyr Leu Leu Pro Ala Ile Asp Trp Asp Thr Ser | | |
| 275 | 280 | 285 |
| Ala Leu Ala Pro Tyr Leu Gly Thr Gln Glu Glu Cys Leu Phe Gly Leu | | |
| 290 | 295 | 300 |
| Leu Thr Leu Ile Phe Leu Thr Cys Val Ala Ala Thr Leu Leu Val Ala | | |
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| Glu Glu Ala Ala Leu Gly Pro Thr Glu Pro Ala Glu Gly Leu Ser Ala | | |
| 325 | 330 | 335 |
| Pro Ser Leu Ser Pro His Cys Cys Pro Cys Arg Ala Arg Leu Ala Phe | | |
| 340 | 345 | 350 |
| Arg Asn Leu Gly Ala Leu Leu Pro Arg Leu His Gln Leu Cys Cys Arg | | |
| 355 | 360 | 365 |
| Met Pro Arg Thr Leu Arg Arg Leu Phe Val Ala Glu Leu Cys Ser Trp | | |
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<400> 734
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<400> 736
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| Lys | Pro | Arg | Arg | Asn | Leu | Glu | Glu | Asp | Asp | Tyr | Leu | His | Lys | Asp | Thr |
| | | | 20 | | | | 25 | | | | | | 30 | | |
| Gly | Glu | Thr | Ser | Met | Leu | Lys | Arg | Pro | Val | Leu | Leu | His | Leu | His | Gln |
| | | | 35 | | | | 40 | | | | | | 45 | | |
| Thr | Ala | His | Ala | Asp | Glu | Phe | Asp | Cys | Pro | Ser | Glu | Leu | Gln | His | Thr |
| | | | 50 | | | | 55 | | | | | | 60 | | |
| Gln | Glu | Leu | Phe | Pro | Gln | Trp | His | Leu | Pro | Ile | Lys | Ile | Ala | Ala | Ile |
| | | | 65 | | | | 70 | | | | | | 75 | 80 | |
| Ile | Ala | Ser | Leu | Thr | Phe | Leu | Tyr | Thr | Leu | Leu | Arg | Glu | Val | Ile | His |
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| Pro | Leu | Ala | Thr | Ser | His | Gln | Gln | Tyr | Phe | Tyr | Lys | Ile | Pro | Ile | Leu |
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| Val | Ile | Asn | Lys | Val | Leu | Pro | Met | Val | Ser | Ile | Thr | Leu | Leu | Ala | Leu |
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| Val | Tyr | Leu | Pro | Gly | Val | Ile | Ala | Ala | Ile | Val | Gln | Leu | His | Asn | Gly |
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| Thr | Lys | Tyr | Lys | Lys | Phe | Pro | His | Trp | Leu | Asp | Lys | Trp | Met | Leu | Thr |
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| Ile | Tyr | Ser | Leu | Ser | Tyr | Pro | Met | Arg | Arg | Ser | Tyr | Arg | Tyr | Lys | Leu |
| | | | 180 | | | | | | 185 | | | | | | 190 |
| Leu | Asn | Trp | Ala | Tyr | Gln | Gln | Val | Gln | Gln | Asn | Lys | Glu | Asp | Ala | Trp |
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| Ile | Glu | His | Asp | Val | Trp | Arg | Met | Glu | Ile | Tyr | Val | Ser | Leu | Gly | Ile |
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| Val | Gly | Leu | Ala | Ile | Leu | Ala | Leu | Leu | Ala | Val | Thr | Ser | Ile | Pro | Ser |
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| Val | Ser | Asp | Ser | Leu | Thr | Trp | Arg | Glu | Phe | His | Tyr | Ile | Gln | Ser | Lys |
| | | | 245 | | | | | | 250 | | | | | | 255 |
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| Ala | Trp | Asn | Lys | Trp | Ile | Asp | Ile | Lys | Gln | Phe | Val | Trp | Tyr | Thr | Pro |
| | | | 275 | | | | | | 280 | | | | | | 285 |
| Pro | Thr | Phe | Met | Ile | Ala | Val | Phe | Leu | Pro | Ile | Val | Val | Leu | Ile | Phe |
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| Lys | Ser | Ile | Leu | Phe | Leu | Pro | Cys | Leu | Arg | Lys | Lys | Ile | Leu | Lys | Ile |
| | | | 305 | | | 310 | | | | | | 315 | | | 320 |
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325

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cttctcaaga gctaaggaag ttgtctgagt attctggcat gatgtttgtt gatcaacaa 2400
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```

<210> 740

<211> 62

<212> PRT

<213> Homo sapiens

<400> 740

```

Met Thr His Ser Ser Ala Trp Leu Glu Arg Pro Gln Glu Thr Tyr Asn
          5              10              15

```

```

His Gly Gly Arg Arg Gly Ser Lys Ala Arg Leu Thr Trp Trp Gln
          20              25              30

```

```

Glu Arg Thr Ser Glu Gly Gly Asp Cys His Lys Leu Phe Phe Phe Glu
          35              40              45

```

```

Thr Arg Val Trp Pro Cys Cys Pro Gly Trp Ser Ala Val Ala
          50              55              60

```

<210> 741

<211> 135

<212> PRT

<213> Homo sapiens

<400> 741

```

Met Val Glu Gly Glu Gly Glu Ala Arg His Val Leu His Gly Gly Arg
          5              10              15

```

Arg Glu Arg Val Arg Gly Glu Thr Ala Thr Asn Phe Phe Phe Leu Arg
 20 25 30

Gln Glu Ser Gly Pro Val Ala Gln Ala Gly Val Gln Trp His Asp Leu
 35 40 45

Ser Ser Leu Gln Pro Leu Pro His Arg Phe Lys Gln Phe Ser Cys Leu
 50 55 60

Ser Leu Pro His Ser Trp Asp His Arg Tyr Ala Pro His Leu Ala
 65 70 75 80

Asn Phe Cys Ser Phe Ser Arg Asp Gly Val Ser Leu Cys Cys Ser Gly
 85 90 95

Trp Ser Lys Thr Pro Gly Leu Gln Gln Ser Ala Cys Leu Gly Leu Pro
 100 105 110

Lys Cys Trp Gly Tyr Arg His Lys Pro Pro His Pro Ala Cys His Ile
 115 120 125

Leu Leu Asn Tyr Gln Val Ser
 130 135

<210> 742
 <211> 77
 <212> PRT
 <213> Homo sapiens

<400> 742
 Met His Tyr His Lys Asn Ser Met Gly Lys Ile Pro Pro Ile Ile Gln
 5 10 15

Ser Pro Pro Thr Arg Ser Pro Pro Thr Arg Gly Ile Gly Trp Gly His
 20 25 30

Arg Ala Lys Pro Tyr Gln Met Leu Gln Gly Leu Gly Thr Leu Arg Pro
 35 40 45

Leu Arg Pro Gly Val Ser Val Thr Leu Leu Gly Ser Val Cys Leu Gln
 50 55 60

Asp Leu Pro Pro Leu Pro Trp Tyr Arg Arg Lys Val Leu
 65 70 75

<210> 743
 <211> 60
 <212> PRT
 <213> Homo sapiens

<400> 743
 Met Leu Val His Ile Tyr Ser Cys Cys Gly Met Val Tyr Arg Phe Gly
 5 10 15

Gln Met Ser Asp Asn Pro Phe Tyr Ile Leu Ala Ser Leu Gly Ser Ser
 20 25 30

Ser Cys Arg Asn Gly Leu Ala Ser Lys Trp Arg Gln Ala Asp Pro Ser
 35 40 45
 Asp Gly Tyr Met Glu Pro Cys Phe Gln Leu Leu Phe
 50 55 60

<210> 744
 <211> 76
 <212> PRT
 <213> Homo sapiens

<400> 744
 Met Cys Leu Cys Ile Pro Leu Gly Gly Tyr Gln Glu Leu Cys His Cys
 5 10 15
 Met Ser Thr Ser Asp Gly Phe Ala Pro Pro Gln Leu Gly Ser Arg
 20 25 30
 Cys Ser His Ile Arg Gly Pro Ile Lys Ile Ala Arg Asn Lys Phe Pro
 35 40 45
 Arg Thr Leu Thr Ser Gln Glu Leu Arg Arg Phe Ala Glu Tyr Ser Gly
 50 55 60
 Met Met Phe Gly Asp Gln Thr Thr Ala Gly Gln Lys
 65 70 75

<210> 745
 <211> 76
 <212> PRT
 <213> Homo sapiens

<400> 745
 Met Val Lys Ser Arg Phe Thr Lys Asn Thr Lys Ile Thr Gln Ala Trp
 5 10 15
 Trp Arg Ala Pro Val Ile Pro Gly Thr Arg Glu Ala Glu Gly Gly Glu
 20 25 30
 Ser Leu Glu Pro Gly Arg Leu Arg Glu Glu Asn Arg Leu Asn Pro Gly
 35 40 45
 Gly Arg Gly Cys Ser Glu Pro Arg Ser Cys Cys Cys Thr Pro Ala Trp
 50 55 60
 Ser Thr Glu Gln Asp Ser Ala Ser Lys Thr Asn Lys
 65 70 75

<210> 746
 <211> 80
 <212> PRT
 <213> Homo sapiens

<400> 746
 Met Leu Leu His Ser Ser Leu Val Asn Arg Ala Arg Leu Cys Leu Lys

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|----|
| | | | | 5 | | | | | | | 10 | | | | | | | 15 |
| Asn | Lys | Gln | Ile | Asn | Lys | Gln | Thr | Asn | Lys | Thr | Glu | Arg | Phe | Cys | Cys | | | |
| | | | 20 | | | | | | 25 | | | | | 30 | | | | |
| Asn | Val | Gln | Gly | Ala | Ile | Cys | Ser | Phe | Lys | Lys | Ile | Ile | Phe | Gly | Gln | | | |
| | | | 35 | | | | 40 | | | | | | 45 | | | | | |
| Ala | Gln | Trp | Leu | Thr | Pro | Val | Ile | Pro | Ala | Leu | Trp | Glu | Ala | Lys | Val | | | |
| | | | 50 | | | | 55 | | | | | 60 | | | | | | |
| Gly | Gly | Ser | Phe | Glu | Val | Arg | Ser | Leu | Arg | Ser | Ala | Trp | Pro | Thr | Trp | | | |
| 65 | | | | | 70 | | | | 75 | | | | | | 80 | | | |

```
<210> 747
<211> 72
<212> PRT
<213> Homo sapiens
```

```

<400> 747
Met His Tyr His Lys Asn Ser Met Gly Lys Ile Pro Pro His Asn Pro
          5              10              15

Ile Thr Ser His Gln Val Ser Ser Asp Thr Trp Asp Trp Val Gly Thr
          20              25              30

Gln Ser Gln Thr Val Ser Asp Ala Ala Gly Ala Gly Asp Thr Glu Thr
          35              40              45

Thr Gln Thr Trp Cys Leu Cys His Ser Ser Gly Leu Cys Leu Ser Pro
          50              55              60

Gly Pro Pro Ser Pro Ser Met Val
65              70

```

```
<210> 748
<211> 77
<212> PRT
<213> Homo sapiens
```

```

<400> 748
Met His Tyr His Lys Asn Ser Met Gly Lys Ile Pro Pro Ile Ile Gln
              5              10              15

Ser Pro Pro Thr Arg Ser Pro Pro Thr Arg Gly Ile Gly Trp Gly His
              20              25              30

Arg Ala Lys Pro Tyr Gln Met Leu Gln Gly Leu Gly Thr Leu Arg Pro
              35              40              45

Leu Arg Pro Gly Val Ser Val Thr Leu Leu Gly Ser Val Cys Leu Gln
              50              55              60

Asp Leu Pro Pro Leu Pro Trp Tyr Arg Arg Lys Val Leu
              65              70              75

```

```
<210> 749
<211> 60
<212> PRT
<213> Homo sapiens
```

```

<400> 749
Met Leu Val His Ile Tyr Ser Cys Cys Gly Met Val Tyr Arg Phe Gly
                    5              10              15
Gln Met Ser Asp Asn Pro Phe Tyr Ile Leu Ala Ser Leu Gly Ser Ser
                20              25              30
Ser Cys Arg Asn Gly Leu Ala Ser Lys Trp Arg Gln Ala Asp Pro Ser
                35              40              45
Asp Gly Tyr Met Glu Pro Cys Phe Gln Leu Leu Phe
    50              55              60

```

```
<210> 750
<211> 76
<212> PRT
<213> Homo sapiens
```

```

<400> 750
Met Cys Leu Cys Ile Pro Leu Gly Gly Tyr Gln Glu Leu Cys His Cys
      5              10              15

Met Ser Thr Ser Asp Gly Phe Ala Pro Pro Pro Gln Leu Gly Ser Arg
      20              25              30

Cys Ser His Ile Arg Gly Pro Ile Lys Ile Ala Arg Asn Lys Phe Pro
      35              40              45

Arg Thr Leu Thr Ser Gln Glu Leu Arg Arg Phe Ala Glu Tyr Ser Gly
      50              55              60

Met Met Phe Gly Asp Gln Thr Thr Ala Gly Gln Lys
      65              70              75

```

```
<210> 751
<211> 2479
<212> DNA
<213> Homo sapiens
```

| #400- 751 | | | | | | |
|------------|-------------|-------------|-------------|-------------|-------------|-----|
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| ctttgaactc | agggtccacca | ccagctattg | gaccttacta | tgaaaacocat | ggataccacac | 120 |
| cggaaaaacc | ctatcccgcc | cagcccaactg | tgtgtcccaac | tgtctacag | gtgcctccgc | 180 |
| ctcagttact | ccctgcccc | tgtgcccaat | agcccgccagc | ggctctgacg | caggtctcca | 240 |
| accocctcgt | ctgcacgacg | cccaaatccc | catccgggac | agtgtgcgacc | tcaagaacta | 300 |
| agaagaacct | ctgtacatcac | ttagacctct | ggacctctct | ctgaggagct | cgctggccgc | 360 |
| ctgcctactc | ctggaagtct | atggggcaat | agtctccaaa | tgctgggata | gagtcgcact | 420 |
| ctccagttac | ctgtcatcac | ccctctaact | gtgtgtgtag | ctgtgtcaac | tgccccgcgc | 480 |
| ggtaggacga | gaatcggtctg | tgtgcctctc | agcagccaaa | ctctcaactg | caagatcact | 540 |
| cdcdgacgac | ccatcgctgt | cacctctgtc | gccaaaca | cttgaacgtt | acatccggcg | 600 |

```

ggcgccgctg caggacatg ggctataaga ataattttta ctctagccaa ggaatagtgg 660
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ataaaaaact gtaccacagt gatgcctgtt ctcacaaagc agtggtttct ttagctgttt 780
tagcctcgcg ggccaacttg aactcaagcc gccagagcag gatcgctggg ggtgagagcg 840
gcctcccgcg ggccctggccc tggcagggtca gcctgcacgt ccagaacgctc cacgtgtgcg 900
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ctgagttcaa agccattct

```

<210> 752
<211> 492
<212> PRT
<213> Homo_sapiens

<400> 752
Met Ala Leu Asn Ser Gly Ser Pro Pro Ala Ile Gly Pro Tyr Tyr Glu
5 10 15
Asn His Gly Tyr Gln Pro Glu Asn Pro Tyr Pro Ala Gln Pro Thr Val
20 25 30
Val Pro Thr Val Tyr Glu Val His Pro Ala Gln Tyr Tyr Pro Ser Pro
35 40 45
Val Pro Gln Tyr Ala Pro Arg Val Leu Thr Gln Ala Ser Asn Pro Val
50 55 60
Val Cys Thr Gln Pro Lys Ser Pro Ser Gly Thr Val Cys Thr Ser Lys
65 70 75 80
Thr Lys Lys Ala Leu Cys Ile Thr Leu Thr Leu Gly Thr Phe Val Val
85 90 95
Gly Ala Ala Leu Ala Ala Gly Leu Leu Trp Lys Phe Met Gly Ser Lys

| 100 | | | | | | | | | | 105 | | | | | | | | | | 110 | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Ser | Asn | Ser | Gly | Ile | Glu | Cys | Asp | Ser | Ser | Gly | Thr | Cys | Ile | Asn | Cys | Asp | Ser | Ser | Gly | Thr | Cys | Ile | Asn | Cys | Asp | Ser | Ser | Gly | Thr | Cys | Ile | Asn |
| | | 115 | | | | | | | | | | | | | | | | 120 | | | | | | | | | 125 | | | | | | |
| Pro | Ser | Asn | Trp | Cys | Asp | Gly | Val | Ser | His | Cys | Pro | Gly | Gly | Glu | Asp | Pro | Ser | Asn | Trp | Cys | Asp | Gly | Val | Ser | Pro | Ser | Asn | Trp | Cys | Asp | Gly | Val | Ser |
| | | 130 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Glu | Asn | Arg | Cys | Val | Arg | Leu | Tyr | Gly | Pro | Asn | Phe | Ile | Leu | Gln | Met | Glu | Asn | Arg | Cys | Val | Arg | Leu | Tyr | Gly | Glu | Asn | Arg | Cys | Val | Arg | Leu | Tyr | Gly |
| | | 145 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tyr | Ser | Ser | Gln | Arg | Lys | Ser | Trp | His | Pro | Val | Cys | Gln | Asp | Asp | Trp | Tyr | Ser | Ser | Gln | Arg | Lys | Ser | Trp | His | Tyr | Ser | Ser | Gln | Arg | Lys | Ser | Trp | His |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asn | Glu | Asn | Tyr | Gly | Arg | Ala | Ala | Cys | Arg | Asp | Met | Gly | Tyr | Lys | Asn | Asn | Glu | Asn | Tyr | Gly | Arg | Ala | Ala | Asn | Glu | Asn | Tyr | Gly | Arg | Ala | Ala | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asn | Phe | Tyr | Ser | Ser | Gln | Gly | Ile | Val | Asp | Asp | Ser | Gly | Ser | Thr | Ser | Asn | Phe | Tyr | Ser | Ser | Gln | Gly | Ile | Asn | Phe | Tyr | Ser | Ser | Gln | Gly | Ile | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Phe | Met | Lys | Leu | Asn | Thr | Ser | Ala | Gly | Asn | Val | Asp | Ile | Tyr | Lys | Lys | Phe | Met | Lys | Leu | Asn | Thr | Ser | Ala | Phe | Met | Lys | Leu | Asn | Thr | Ser | Ala | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leu | Tyr | His | Ser | Asp | Ala | Cys | Ser | Ser | Lys | Ala | Val | Val | Ser | Leu | Arg | Leu | Tyr | His | Ser | Asp | Ala | Cys | Leu | Tyr | His | Ser | Asp | Ala | Cys | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cys | Leu | Ala | Cys | Gly | Val | Asn | Leu | Asn | Ser | Ser | Arg | Gln | Ser | Arg | Ile | Cys | Leu | Ala | Cys | Gly | Val | Asn | Cys | Leu | Ala | Cys | Gly | Val | Asn | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Val | Gly | Gly | Glu | Ser | Ala | Leu | Pro | Gly | Ala | Trp | Pro | Trp | Gln | Val | Ser | Val | Gly | Gly | Glu | Ser | Ala | Leu | Val | Gly | Gly | Glu | Ser | Ala | Leu | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leu | His | Val | Gln | Asn | Val | His | Val | Cys | Gly | Gly | Ser | Ile | Ile | Thr | Pro | Leu | His | Val | Gln | Asn | Val | His | Leu | His | Val | Gln | Asn | Val | His | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Glu | Trp | Ile | Val | Thr | Ala | Ala | His | Cys | Val | Glu | Lys | Pro | Leu | Asn | Asn | Glu | Trp | Ile | Val | Thr | Ala | Ala | Glu | Trp | Ile | Val | Thr | Ala | Ala | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pro | Trp | His | Trp | Thr | Ala | Phe | Ala | Gly | Ile | Leu | Arg | Gln | Ser | Phe | Met | Pro | Trp | His | Trp | Thr | Ala | Phe | Pro | Trp | His | Trp | Thr | Ala | Phe | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Phe | Tyr | Gly | Ala | Gly | Tyr | Gln | Val | Gln | Lys | Val | Ile | Ser | His | Pro | Asn | Phe | Tyr | Gly | Ala | Gly | Tyr | Gln | Phe | Tyr | Gly | Ala | Gly | Tyr | Gln | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tyr | Asp | Ser | Lys | Thr | Lys | Asn | Asn | Asp | Ile | Ala | Leu | Met | Lys | Leu | Gln | Tyr | Asp | Ser | Lys | Thr | Lys | Asn | Tyr | Asp | Ser | Lys | Thr | Lys | Asn | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lys | Pro | Leu | Thr | Phe | Asn | Asp | Leu | Val | Lys | Pro | Val | Cys | Leu | Pro | Asn | Lys | Pro | Leu | Thr | Phe | Asn | Asp | Lys | Pro | Leu | Thr | Phe | Asn | Asp | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pro | Gly | Met | Met | Leu | Gln | Pro | Glu | Gln | Leu | Cys | Trp | Ile | Ser | Gly | Trp | Pro | Gly | Met | Met | Leu | Gln | Pro | Pro | Gly | Met | Met | Leu | Gln | Pro | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gly | Ala | Thr | Glu | Glu | Lys | Gly | Lys | Thr | Ser | Glu | Val | Leu | Asn | Ala | Ala | Gly | Ala | Thr | Glu | Glu | Lys | Gly | Gly | Ala | Thr | Glu | Glu | Lys | Gly | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lys | Val | Leu | Leu | Ile | Glu | Thr | Gln | Arg | Cys | Asn | Ser | Arg | Tyr | Val | Tyr | Lys | Val | Leu | Leu | Ile | Glu | Thr | Lys | Val | Leu | Leu | Ile | Glu | Thr | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

296

Asp Asn Leu Ile Thr Pro Ala Met Ile Cys Ala Gly Phe Leu Gln Gly
 420 425 430

Asn Val Asp Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Thr Ser
 435 440 445

Asn Asn Asn Ile Trp Trp Leu Ile Gly Asp Thr Ser Trp Gly Ser Gly
 450 455 460

Cys Ala Lys Ala Tyr Arg Pro Gly Val Tyr Gly Asn Val Met Val Phe
 465 470 475 480

Thr Asp Trp Ile Tyr Arg Gln Met Lys Ala Asn Gly
 485 490

<210> 753
 <211> 683
 <212> DNA
 <213> Homo sapiens

<400> 753
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 ctttgaactc agggtcacca ccagctattg gaccttacta tgaaaaccat ggataccaac 120
 cggaaaaccc ctatcccgca cagcccactg tggccccac tgctctacgag gtgcatccgg 180
 ctccagtacta ccgcgtccccc gtgcccagtg acgcccagag ggtcctgacg caggcttcca 240
 acccgcgtct ctgcaocgag cccaaatccc catccgggac agtgtgcacc tcaaagacta 300
 agaaaagcact gtgcatcacc ttgacctggg ggaccttccct cgtgggagct gcctgggcg 360
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 cctcaggtac ctgcatcaac cctctaaact ggtgtgatgg cgtgtcacac tgccccggcg 480
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 catctcagag gaagtccctgg caccctgtgt gccaaagcga ctggaaacgag aactacgggc 600
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 atgcagcgg atccaccagc ttt 683

<210> 754
 <211> 209
 <212> PRT
 <213> Homo sapiens

<400> 754
 Met Ala Leu Asn Ser Gly Ser Pro Pro Ala Ile Gly Pro Tyr Tyr Glu
 1 5 10 15
 Asn His Gly Tyr Gln Pro Glu Asn Pro Tyr Pro Ala Gln Pro Thr Val
 20 25 30
 Val Pro Thr Val Tyr Glu Val His Pro Ala Gln Tyr Tyr Pro Ser Pro
 35 40 45
 Val Pro Gln Tyr Ala Pro Arg Val Leu Thr Gln Ala Ser Asn Pro Val
 50 55 60
 Val Cys Thr Gln Pro Lys Ser Pro Ser Gly Thr Val Cys Thr Ser Lys
 65 70 75 80
 Thr Lys Lys Ala Leu Cys Ile Thr Leu Thr Leu Gly Thr Phe Leu Val
 85 90 95

Gly Ala Ala Leu Ala Ala Gly Leu Leu Trp Lys Phe Met Gly Ser Lys
 100 105 110
 Cys Ser Asn Ser Gly Ile Glu Cys Asp Ser Ser Gly Thr Cys Ile Asn
 115 120 125
 Pro Ser Asn Trp Cys Asp Gly Val Ser His Cys Pro Gly Gly Glu Asp
 130 135 140
 Glu Asn Arg Cys Val Arg Leu Tyr Gly Pro Asn Phe Ile Leu Gln Met
 145 150 155 160
 Tyr Ser Ser Gln Arg Lys Ser Trp His Pro Val Cys Gln Asp Asp Trp
 165 170 175
 Asn Glu Asn Tyr Gly Arg Ala Ala Cys Arg Asp Met Gly Tyr Lys Asn
 180 185 190
 Asn Phe Tyr Ser Ser Gln Gly Ile Val Asp Asp Ser Gly Ser Thr Ser
 195 200 205
 Phe

<210> 755

<211> 27

<212> PRT

<213> Homo sapiens

<400> 755

Val Gly Glu Gly Leu Tyr Gln Gly Val Pro Arg Ala Glu Pro Gly Thr
 1 5 10 15
 Glu Ala Arg Arg His Tyr Asp Glu Gly Val Arg
 20 25

<210> 756

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 756

ggatccgccg ccaccatgtc actttctagc ctgct

35

<210> 757

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 757

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27

<210> 758

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

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<400> 758
ggatccgccg ccacatggg ctgcaggctg ctct
34

<210> 759
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 759
gtcgactcag aaatccttc tcttgac
27

<210> 760
<211> 936
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...()
<223> n = A,T,C or G

<400> 760
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acgggagtta,cgcagacacc aagacacctg gtcattggaa tgacaaataa gaagtctttg 120
aaatgtgaac aacatctggg tcataacgct atgtattggt acaagcaaaag tgctaagaag 180
ccaactggagc tcattgtttg ctacagtctt gaagaacggg ttgaaaacaa cagtgtgccca 240
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cagccagaag actcggccct gtatctctgc gccagcagcc aagacgggac aagcagctcc 360
tacgcagcagt acttcgggcc gggaaccagg ctacaggtca cagaggacct gaaaaacgtg 420
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gccacaactgg tgtgcctggc cacaggcttc taccocgacc acgtggaagt gagctggtgg 540
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cccgccctca atgactccag atactgcctg agcagccgcc tgagggtctc ggccaccttc 660
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gacgagtgga cccaggtatg ggccaaacct gtcaccaga tcgtcagcgc cgaggcctgg 780
ggtagagcag actgtggcctt cacctccgag tcttaccagc aagggggtcct gtcgtccacc 840
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gtgctgatgg ccattggtcaa gagaaaggat ttctga
936

<210> 761
<211> 834
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...()
<223> n = A,T,C or G

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ctggactgca catatgacac cagtgatcaa agttatggtc tcttctgta caagcagccc 180

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<210> 762
<211> 311
<212> PRT
<213> Homo sapiens
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<400> 762
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Gly Met Thr Asn Lys Lys Ser Leu Lys Cys Glu Gln His Leu Gly His
35 40 45

Met Phe Val Tyr Ser Leu Glu Glu Arg Val Glu Asn Asn Ser Val Pro
65 70 75 80

Leu His Thr Leu Gln Pro Glu Asp Ser Ala Leu Tyr Leu Cys Ala Ser
100 105 110

Thr Arg Leu Thr Val Thr Glu Asp Leu Lys Asn Val Phe Pro Pro Glu
130 135 140

Ala Thr Leu Val Cys Leu Ala Thr Gly Phe Tyr Pro Asp His Val Glu
165 170 175

Leu Ser Trp Trp Val Asn Gly Lys Glu Val His Ser Gly Val Ser Thr
180 185 190

300

Asp Pro Gln Pro Leu Lys Glu Gln Pro Ala Leu Asn Asp Ser Arg Tyr
 195 200 205
 Cys Leu Ser Ser Arg Leu Arg Val Ser Ala Thr Phe Trp Gln Asn Pro
 210 215 220
 Arg Asn His Phe Arg Cys Gln Val Gln Phe Tyr Gly Leu Ser Glu Asn
 225 230 235 240
 Asp Glu Trp Thr Gln Asp Arg Ala Lys Pro Val Thr Gln Ile Val Ser
 245 250 255
 Ala Glu Ala Trp Gly Arg Ala Asp Cys Gly Phe Thr Ser Glu Ser Tyr
 260 265 270
 Gln Gln Gly Val Leu Ser Ala Thr Ile Leu Tyr Glu Ile Leu Leu Gly
 275 280 285
 Lys Ala Thr Leu Tyr Ala Val Leu Val Ser Ala Leu Val Leu Met Ala
 290 295 300
 Met Val Lys Arg Lys Asp Phe
 305 310

<210> 763
 <211> 277
 <212> PRT
 <213> Homo sapiens

<400> 763
 Met Ser Leu Ser Ser Leu Leu Lys Val Val Thr Ala Ser Leu Trp Leu
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 Gly Pro Gly Ile Ala Gln Lys Ile Thr Gln Thr Gln Pro Gly Met Phe
 20 25 30
 Val Gln Glu Lys Glu Ala Val Thr Leu Asp Cys Thr Tyr Asp Thr Ser
 35 40 45
 Asp Gln Ser Tyr Gly Leu Phe Trp Tyr Lys Gln Pro Ser Ser Gly Glu
 50 55 60
 Met Ile Phe Leu Ile Tyr Gln Gly Ser Tyr Asp Glu Gln Asn Ala Thr
 65 70 75 80
 Glu Gly Arg Tyr Ser Leu Asn Phe Gln Lys Ala Arg Lys Ser Ala Asn
 85 90 95
 Leu Val Ile Ser Ala Ser Gln Leu Gly Asp Ser Ala Met Tyr Phe Cys
 100 105 110
 Ala Met Arg Glu Gly Ala Gly Gly Gly Asn Lys Leu Thr Phe Gly Thr
 115 120 125
 Gly Thr Gln Leu Lys Val Glu Leu Asn Ile Gln Asn Pro Asp Pro Ala
 130 135 140

Val Tyr Gln Leu Arg Asp Ser Lys Ser Ser Asp Lys Ser Val Cys Leu
145 150 155 160

Phe Thr Asp Phe Asp Ser Gln Thr Asn Val Ser Gln Ser Lys Asp Ser
165 170 175

Asp Val Tyr Ile Thr Asp Lys Thr Val Leu Asp Met Arg Ser Met Asp
180 185 190

Phe Lys Ser Asn Ser Ala Val Ala Trp Ser Asn Lys Ser Asp Phe Ala
195 200 205

Cys Ala Asn Ala Phe Asn Asn Ser Ile Ile Pro Glu Asp Thr Phe Phe
210 215 220

Pro Ser Pro Glu Ser Ser Cys Asp Val Lys Leu Val Glu Lys Ser Phe
225 230 235 240

Glu Thr Asp Thr Asn Leu Asn Phe Gln Asn Leu Ser Val Ile Gly Phe
245 250 255

Arg Ile Leu Leu Leu Lys Val Ala Gly Phe Asn Leu Leu Met Thr Leu
260 265 270

Arg Leu Trp Ser Ser
275

<210> 764

<211> 1536

<212> DNA

<213> Homo sapiens

<400> 764

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atgtttcagc acctgatgca gaagcgggaag cacaccagct ggacgtatgg accactgacc 180
tcgactctct atgacctcac agagatcgac tcctcagggg atgagcagtc cctgctggaa 240
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gagctgggtga gcttcaagtg gaagcgggtac gggcgccgt acttctgcat gctgggtgcc 360
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atggtgctgg tgaccatggt gatggggctc atcagtgcca ggggggaggt ggtaccatg 720
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cgctccggga tctcggaagc ggagtatggc ctgggagacc gctggttcc gctgggtgaa 1260
gacagcgaag atctcaaccg gcagcggatc caacgctacg cacagtcctt ccacaccggg 1320
ggctctgagg atttggacaa agactcagtg gaaaaactag agctgggctg tcccttcagc 1380

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ccccacctgt cccctccctat gccctcagtg tctcgaagta cctcccgag cagtgccaat 1440
tgggaaaggc ttgcgcaagg gaccctgagg agagacctgc gtgggataat caacaggggt 1500
ctggagagcgc gggagagctg ggaatatcag atctga 1536

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<210> 765

<211> 1533

<212> DNA

<213> Homo sapiens

<400> 765

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atgtttcagc acctgatgca gaagcggaag cacacctagt ggacgtatgg accactgacc 180
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gagctgtgtg gctcaagtg gaagcgggtac gggcgccgt acttctgcat cgtgggtgcc 360
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<210> 766

<211> 511

<212> PRT

<213> Homo sapiens

<400> 766

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Met Tyr Asn Leu Leu Ser Tyr Asp Arg His Gly Asp His Leu Gln
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Pro Leu Asp Leu Val Pro Asn His Gln Gly Leu Thr Pro Phe Lys Leu
      20              25              30

Ala Gly Val Glu Gly Asn Thr Val Met Phe Gln His Leu Met Gln Lys
      35              40              45

Arg Lys His Thr Gln Trp Thr Tyr Gly Pro Leu Thr Ser Thr Leu Tyr
      50              55              60

Asp Leu Thr Glu Ile Asp Ser Ser Gly Asp Glu Gln Ser Leu Leu Glu
      65              70              75              80

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Leu Ile Ile Thr Thr Lys Lys Arg Glu Ala Arg Gln Ile Leu Asp Gln
 85 90 95
 Thr Pro Val Lys Glu Leu Val Ser Leu Lys Trp Lys Arg Tyr Gly Arg
 100 105 110
 Pro Tyr Phe Cys Met Leu Gly Ala Ile Tyr Leu Leu Tyr Ile Ile Cys
 115 120 125
 Phe Thr Met Cys Cys Ile Tyr Arg Pro Leu Lys Pro Arg Thr Asn Asn
 130 135 140
 Arg Thr Ser Pro Arg Asp Asn Thr Leu Leu Gln Gln Lys Leu Leu Gln
 145 150 155 160
 Glu Ala Tyr Met Thr Pro Lys Asp Asp Ile Arg Leu Val Gly Glu Leu
 165 170 175
 Val Thr Val Ile Gly Ala Ile Ile Ile Leu Leu Val Glu Val Pro Asp
 180 185 190
 Ile Phe Arg Met Gly Val Thr Arg Phe Phe Gly Gln Thr Ile Leu Gly
 195 200 205
 Gly Pro Phe His Val Leu Ile Ile Thr Tyr Ala Phe Met Val Leu Val
 210 215 220
 Thr Met Val Met Arg Leu Ile Ser Ala Ser Gly Glu Val Val Pro Met
 225 230 235 240
 Ser Phe Ala Leu Val Leu Gly Trp Cys Asn Val Met Tyr Phe Ala Arg
 245 250 255
 Gly Phe Gln Met Leu Gly Pro Phe Thr Ile Met Ile Gln Lys Met Ile
 260 265 270
 Phe Gly Asp Leu Met Arg Phe Cys Trp Leu Met Ala Val Val Ile Leu
 275 280 285
 Gly Phe Ala Ser Ala Phe Tyr Ile Ile Phe Gln Thr Glu Asp Pro Glu
 290 295 300
 Glu Leu Gly His Phe Tyr Asp Tyr Pro Met Ala Leu Phe Ser Thr Phe
 305 310 315 320
 Glu Leu Phe Leu Thr Ile Ile Asp Gly Pro Ala Asn Tyr Asn Val Asp
 325 330 335
 Leu Pro Phe Met Tyr Ser Ile Thr Tyr Ala Ala Phe Ala Ile Ala
 340 345 350
 Thr Leu Leu Met Leu Asn Leu Leu Ile Ala Met Met Gly Asp Thr His
 355 360 365
 Trp Arg Val Ala His Glu Arg Asp Glu Leu Trp Arg Ala Gln Ile Val
 370 375 380
 Ala Thr Thr Val Met Leu Glu Arg Lys Leu Pro Arg Cys Leu Trp Pro

385 390 395 400
 Arg Ser Gly Ile Cys Gly Arg Glu Tyr Gly Leu Gly Asp Arg Trp Phe
 405 410 415
 Leu Arg Val Glu Asp Arg Gln Asp Leu Asn Arg Gln Arg Ile Gln Arg
 420 425 430
 Tyr Ala Gln Ala Phe His Thr Arg Gly Ser Glu Asp Leu Asp Lys Asp
 435 440 445
 Ser Val Glu Lys Leu Glu Leu Gly Cys Pro Phe Ser Pro His Leu Ser
 450 455 460
 Leu Pro Met Pro Ser Val Ser Arg Ser Thr Ser Arg Ser Ser Ala Asn
 465 470 475 480
 Trp Glu Arg Leu Arg Gln Gly Thr Leu Arg Arg Asp Leu Arg Gly Ile
 485 490 495
 Ile Asn Arg Gly Leu Glu Asp Gly Glu Ser Trp Glu Tyr Gln Ile
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<210> 767
 <211> 134
 <212> PRT
 <213> Homo sapiens

<400> 767
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 20 25 30
 Ala Gly Val Glu Gly Asn Thr Val Met Phe Gln His Leu Met Gln Lys
 35 40 45
 Arg Lys His Thr Gln Trp Thr Tyr Gly Pro Leu Thr Ser Thr Leu Tyr
 50 55 60
 Asp Leu Thr Glu Ile Asp Ser Ser Gly Asp Glu Gln Ser Leu Leu Glu
 65 70 75 80
 Leu Ile Ile Thr Thr Lys Lys Arg Glu Ala Arg Gln Ile Leu Asp Gln
 85 90 95
 Thr Pro Val Lys Glu Leu Val Ser Leu Lys Trp Lys Arg Tyr Gly Arg
 100 105 110
 Pro Tyr Phe Cys Met Leu Gly Ala Ile Tyr Leu Leu Tyr Ile Ile Cys
 115 120 125
 Phe Thr Met Cys Cys Ile
 130

<210> 768
 <211> 55
 <212> PRT
 <213> Homo sapiens

<400> 768
 Ala Tyr Arg Pro Leu Lys Pro Arg Thr Asn Asn Arg Thr Ser Pro Arg
 5 10 15
 Asp Asn Thr Leu Leu Gln Gln Lys Leu Leu Gln Glu Ala Tyr Met Thr
 20 25 30
 Pro Lys Asp Asp Ile Arg Leu Val Gly Glu Leu Val Thr Val Ile Gly
 35 40 45
 Ala Ile Ile Ile Leu Leu Val
 50 55

<210> 769
 <211> 39
 <212> PRT
 <213> Homo sapiens

<400> 769
 Glu Val Pro Asp Ile Phe Arg Met Gly Val Thr Arg Phe Phe Gly Gln
 5 10 15
 Thr Ile Leu Gly Gly Pro Phe His Val Leu Ile Ile Thr Tyr Ala Phe
 20 25 30
 Met Val Leu Val Thr Met Val
 35

<210> 770
 <211> 19
 <212> PRT
 <213> Homo sapiens

<400> 770
 Met Arg Leu Ile Ser Ala Ser Gly Glu Val Val Pro Met Ser Phe Ala
 5 10 15
 Leu Val Leu

<210> 771
 <211> 52
 <212> PRT
 <213> Homo sapiens

<400> 771
 Gly Trp Cys Asn Val Met Tyr Phe Ala Arg Gly Phe Gln Met Leu Gly
 5 10 15
 Pro Phe Thr Ile Met Ile Gln Lys Met Ile Phe Gly Asp Leu Met Arg

20 25 30

Phe Cys Trp Leu Met Ala Val Val Ile Leu Gly Phe Ala Ser Ala Phe
 35 40 45

Tyr Ile Ile Phe
 50

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<210> 772
<211> 213
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4002 772

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| | 20 25 30 |
| Ala Asn Tyr Asn Val Asp Leu Pro Phe Met Tyr Ser Ile Thr Tyr Ala | |
| | 35 40 45 |
| Ala Phe Ala Ile Ile Ala Thr Leu Leu Met Leu Asn Leu Leu Ile Ala | |
| | 50 55 60 |
| Met Met Gly Asp Thr His Trp Arg Val Ala His Glu Arg Asp Glu Leu | |
| | 65 70 75 80 |
| Trp Arg Ala Gln Ile Val Ala Thr Thr Val Met Leu Glu Arg Lys Leu | |
| | 85 90 95 |
| Pro Arg Cys Leu Trp Pro Arg Ser Gly Ile Cys Gly Arg Glu Tyr Gly | |
| | 100 105 110 |
| Leu Gly Asp Arg Trp Phe Leu Arg Val Glu Asp Arg Gln Asp Leu Asn | |
| | 115 120 125 |
| Arg Gln Arg Ile Gln Arg Tyr Ala Gln Ala Phe His Thr Arg Gly Ser | |
| | 130 135 140 |
| Glu Asp Leu Asp Lys Asp Ser Val Glu Lys Leu Glu Leu Gly Cys Pro | |
| | 145 150 155 160 |
| Phe Ser Pro His Leu Ser Leu Pro Met Pro Ser Val Ser Arg Ser Thr | |
| | 165 170 175 |
| Ser Arg Ser Ser Ala Asn Trp Glu Arg Leu Arg Gln Gly Thr Leu Arg | |
| | 180 185 190 |
| Arg Asp Leu Arg Gly Ile Ile Asn Arg Gly Leu Glu Asp Gly Glu Ser | |
| | 195 200 205 |
| Trp Glu Tyr Gln Ile | |
| | 210 |

<210> 773
<211> 1302
<212> DNA
<213> Homo sapiens

<400> 773
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<210> 774
<211> 2061
<212> DNA
<213> Homo sapiens

<400> 774
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atttttgaag acagatttcca gaaaaaaaat ttcccttaata aaaaatacaac taagactcctt 180
caaatattgaa actggttggg gaactccatc ttttcaataa ttattttctt cttgtttttc 240
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cagaatataa taaaatgaga taactcagct taaaactata acttctctct cagaactccc 480
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| | | | | | | |
|-------------|-------------|------------|------------|------------|------------|------|
| cttaggcgatg | ggaatcaggc | atTTTTgctt | ctgaggggct | attaccaag | gttaaatag | 1380 |
| ttcatcttca | acaagatgat | acaacagtg | taaccaagaa | actcaaat | caaatactaa | 1440 |
| aacatgatgat | catatgatg | gtaagtttca | ttttctttt | caatcctcag | gttccctgat | 1500 |
| atggatctct | ataacatgct | ttcatccct | ttgtaatgg | atatcatatt | tggaaatgcc | 1560 |
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| ttctggccatt | acttccaatg | tgagtggaa | tgacatgtgc | aatttctata | cctggctcat | 1860 |
| aaaaccctcc | catgtgcagc | cttcatgtt | gacattaaat | gtgacttggg | aagctaatgt | 1920 |
| ttacacagag | taaatcacca | gaagcctgga | tttctgaaaa | aactgtgcag | agccaaatgt | 1980 |
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<212> DNA

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<400> 775

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| gctgtgctag | gtaacttgac | actcatctac | attgtgcgga | ctgagcacag | cctgcatagag | 180 |
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| ggcaacttgcg | tctctcatgt | gtgtgctgtg | ttcatattct | atgtaccttt | caatggattg | 780 |
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<210> 776

<211> 954

<212> DNA

<213> Homo sapiens

<400> 776

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| gctgtgctag | gtaacttgac | aactcatctac | attgtgcgga | ctgagcacag | cctgcatagag | 180 |
| cccatgtata | tatttctttg | catgctttca | ggcattgaca | tctctatctc | caacctcatcc | 240 |
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| ttgcttcgtg | tcacccaaat | tggtgtggct | gctgtggctg | ggggggctgc | actgatggca | 480 |
| ccctctctctg | ttctcatcaa | gcagctgccc | tcttgccgtc | ccaatatcct | ttccatttcc | 540 |
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| ggcaacttgcg | tctctcatgt | gtgtgctgtg | ttcatattct | atgtaccttt | caatggattg | 780 |
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<211> 318
<212> PRT
<213> Homo sapiens
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| Leu | Ile | Gly | Leu 20 | Pro | Gly | Leu | Glu | Glu 25 | Ala | Gln | Phe | Trp | Leu 30 | Ala | Phe |
| Pro | Leu | Cys | Ser 35 | Leu | Tyr | Leu 40 | Ala | Val | Leu | Gly | Asn 45 | Leu | Thr | Ile | |
| Ile | Tyr 50 | Ile | Val | Arg | Thr | Glu 55 | His | Ser | Leu | His 60 | Glu | Pro | Met | Tyr | Ile |
| Phe 65 | Leu | Cys | Met | Leu | Ser 70 | Gly | Ile | Asp | Ile 75 | Leu | Ile | Ser | Thr | Ser | Ser 80 |
| Met | Pro | Lys | Met 85 | Leu | Ile | Phe | Trp | Phe 90 | Asn | Ser | Thr | Thr | Ile | Gln | |
| Phe | Asp | Ala | Cys 100 | Leu | Leu | Gln | Met 105 | Phe | Ala | Ile | His | Ser | Leu 110 | Ser | Gly |
| Met | Glu 115 | Ser | Thr | Val | Leu | Leu | Ala 120 | Met | Ala | Phe | Asp | Arg | Tyr 125 | Val | Ala |
| Ile 130 | Cys | His | Pro | Leu | Arg 135 | His | Ala | Thr | Val | Leu | Thr 140 | Leu | Pro | Arg | Val |
| Thr 145 | Lys | Ile | Gly | Val | Ala 150 | Ala | Val | Val | Arg | Gly 155 | Ala | Ala | Leu | Met | Ala 160 |
| Pro | Leu | Pro | Val 165 | Phe | Ile | Lys | Gln | Leu 170 | Pro | Phe | Cys | Arg | Ser | Asn 175 | Ile |
| Leu | Ser | His 180 | Ser | Tyr | Cys | Leu | His 185 | Gln | Asp | Val | Met | Lys | Leu 190 | Ala | Cys |
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| Ala 210 | Ile | Gly | Leu | Asp | Ser 215 | Leu | Leu | Ile | Ser | Phe | Ser 220 | Tyr | Leu | Leu | Ile |
| Leu 225 | Lys | Thr | Val | Leu 230 | Gly | Leu | Thr | Arg | Glu | Ala 235 | Gln | Ala | Lys | Ala | Phe 240 |
| Gly | Thr | Cys | Val 245 | His | Val | Cys | Ala | Val 250 | Phe | Ile | Phe | Tyr | Val | Pro | |

310

Phe Ile Gly Leu Ser Met Val His Arg Phe Ser Lys Arg Arg Asp Ser
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Pro Leu Pro Val Ile Leu Ala Asn Ile Tyr Leu Leu Val Pro Pro Val
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<210> 778

<211> 28

<212> PRT

<213> Homo sapiens

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<211> 9

<212> PRT

<213> Homo sapiens

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<210> 780

<211> 21

<212> PRT

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<211> 20

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Val Asn Val Val Tyr
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<212> DNA
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<400> 786

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 <212> DNA
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<212> PRT

<213> Homo sapiens

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Val Cys Thr Gln Pro Lys Ser Pro Ser Gly Thr Val Cys Thr Ser Lys
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Thr Lys Lys Ala Leu Cys Ile Thr Leu Thr Leu Gly Thr Phe Leu Val
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Gly Ala Ala Leu Ala Ala Gly Leu Leu Trp Lys Phe Met Gly Ser Lys
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Glu Asn Arg Cys Val Arg Leu Tyr Gly Ser Asn Phe Ile Leu Gln Val
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Tyr Ser Ser Gln Arg Lys Ser Trp His Pro Val Cys Gln Asp Asp Trp
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Asn Glu Asn Tyr Gly Arg Ala Ala Cys Arg Asp Met Gly Tyr Lys Asn
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Val Gly Gly Glu Ser Ala Leu Pro Gly Ala Trp Pro Trp Gln Val Ser
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Leu His Val Gln Asn Val His Val Cys Gly Gly Ser Ile Ile Thr Pro
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INTERNATIONAL SEARCH REPORT

Inter national Application No
PCT/US 01/01574

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/12 C12N15/11 C12N1/21 C12N5/10 C07K14/47
C07K16/18 C07K19/00 A61K38/17 A61K48/00 G01N33/68
C12Q1/68 C12N5/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N A61K C07K G01N C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, EMBL, BIOSIS, WPI Data, SEQUENCE SEARCH

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| X | WO 98 37093 A (CORIXA CORP) 27 August 1998 (1998-08-27) | 1-5, 7, 9, 12-14 |
| Y | the whole document | 6, 10, 11, 15-18 |
| | --- | |
| X | WO 98 37418 A (CORIXA CORP) 27 August 1998 (1998-08-27) | 1-6, 9, 15-17 |
| Y | the whole document | 6, 15-17 |
| | --- | |
| A | WO 97 33909 A (CORIXA CORP) 18 September 1997 (1997-09-18) | |
| | --- | |
| | ---/-- | |

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"Z" document member of the same patent family

Date of the actual completion of the international search

4 September 2001

Date of mailing of the international search report

10.01.02

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.
Fax: (+31-70) 340-3018

Authorized officer

VAN DER SCHAAL C.A.

INTERNATIONAL SEARCH REPORT

Internat. Application No.
PCT/US 01/01574

| C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT | | |
|--|--|-----------------------|
| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| Y | SJOGREN H O: "Therapeutic immunization against cancer antigens using genetically engineered cells" IMMUNOTECHNOLOGY, ELSEVIER SCIENCE PUBLISHERS BV, NL, vol. 3, no. 3, 1 October 1997 (1997-10-01), pages 161-172, XP004097000 ISSN: 1380-2933 the whole document --- | 10,11,18 |
| P,X | WO 00 04149 A (CORIXA CORP) 27 January 2000 (2000-01-27) the whole document --- | 1-7,9-18 |
| E | WO 01 25272 A (CORIXA CORP ; REED STEVEN G (US); XU JIANGCHUN (US); CHEEVER MARTIN) 12 April 2001 (2001-04-12) SEQ ID NO 1 claims --- | 1-7,9-18 |
| E | WO 01 34802 A (HARLOCKER SUSAN L ; CORIXA CORP (US); DAY CRAIG H (US); JIANG YUQIU) 17 May 2001 (2001-05-17) SEQ ID NO 1 claims ----- | 1-7,9-18 |

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 01/01574

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
Although claims 10 13 14 and 18 are (partially) directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☒ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
Claims 1-7, 9-18 partially.
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: Invention 1: Claims 1-7 9-18 partially

A polypeptide comprising at least an immunogenic portion of a prostate tumor protein encoded by SEQ ID 1 (according to the Description of the Sequence Identifiers), fragments and variants thereof, fusion proteins comprising it, polynucleotides or oligonucleotides derived therefrom, antibodies binding to the polypeptide, their use in the treatment of cancer, in methods for diagnosing cancer, or for expanding and/or stimulating T-cells.

2. Claims: Inventions 2-527: Claims 1-18 partially and as far as applicable

As for subject 1 but concerning respectively SEQ IDs
2-111,115-171,173-175,177,179-305,307-315,326,328,
330,332-335,340-375,381,382,384-476,524,526,530,531,533,535
536,552,569-572,587,591,593-606,618-626,630,631,634,636,639-6
55,674,680,681,711,713,716,720-722,735,737-739,751,753,764,76
5,773-776 and 786-788

INTERNATIONAL SEARCH REPORT

Information on patent family members

Intern: al Application No

PCT/US 01/01574

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
|---|---|---------------------|--|--|
| WO 9837093 | A | 27-08-1998 | US 6261562 B1 AU 731840 B2 AU 6181898 A BR 9808881 A CN 1252837 T EP 1005546 A2 HU 0002095 A2 NO 994069 A PL 335348 A1 TR 9902053 T2 US 6262245 B1 WO 9837093 A2 US 6329505 B1 ZA 9801585 A | 17-07-2001 05-04-2001 09-09-1998 11-09-2001 10-05-2000 07-06-2000 28-10-2000 22-10-1999 25-04-2000 21-04-2000 17-07-2001 27-08-1998 11-12-2001 04-09-1998 |
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| WO 0125272 | A | 12-04-2001 | AU 7994200 A WO 0125272 A2 | 10-05-2001 12-04-2001 |
| WO 0134802 | A | 17-05-2001 | US 6329505 B1 AU 1656501 A AU 6158700 A WO 0104143 A2 WO 0134802 A2 | 11-12-2001 06-06-2001 30-01-2001 18-01-2001 17-05-2001 |